

CLINICAL FEATURES AND TREATMENT OF DIAPHRAGMATIC HERNIA

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The literature about the diagnosis and treatment of diaphragmatic hernia is misleading. It puts too much emphasis on the favorable cases, it stresses insufficiently the poor results due to improper diagnosis or unnecessary treatment. Dramatic results have followed the surgical repair of some diaphragmatic hernias. On the other hand, intractable reflux esophagitis, unfavorable vagal sequelae, and disabling intercostal neuralgia have been seen postoperatively in patients whose diaphragmatic hernias had little or nothing to do with their preoperative complaints.

This paper will briefly review the clinical features of diaphragmatic hernia. It will evaluate the conservative method of treatment and will attempt to clarify the indications for surgical intervention in patients having diaphragmatic hernias.

There are two types of diaphragmatic hernia: the hiatus hernia and the true diaphragmatic hernia. Hiatus hernias can be subdivided into three types: hernia due to congenitally short esophagus, the paraesophageal hiatus hernia, and the esophagogastric hernia. In true diaphragmatic hernia, which is much less common, there is a weakness in the diaphragm, either traumatic or congenital in origin, through which the abdominal viscera can herniate. The etiology of the diaphragmatic hernia includes many factors. The acquired factor of greatest importance is, of course, trauma, which may be direct (that is, a laceration or penetrating wound of the diaphragm, with resultant herniation of the abdominal viscera), or indirect, (that is, occurring after a crushing-type injury or an inflammatory process).

Causes of the common type of hiatus hernia seem to include conditions producing increased abdominal pressure, such as pregnancy, obesity, ascites, straining, the wearing of tight garments, or tumor. Occasionally important in the etiology of diaphragmatic hernia are atrophy of the elastic tissues of the diaphragm, cicatricial shortening of the esophagus, and scleroderma.

REPORT OF CASES

CASE 1—When a 42 year-old man was treated after a serious automobile accident, his chest appeared normal on roentgenograms. A few months later, he began to notice chest pain and marked shortness of breath when he exerted himself. X ray films showed the large hiatus hernia. His stomach and part of the colon had herniated up through the diaphragm into his chest. His symptoms were due partly to the digestive upset resulting from the organs being in the chest, and partly to the dyspnea from the great displacement of the pulmonary capacity.

CASE 2—A moderately obese woman complained of abdominal distress that was worse when she was lying down but was relieved when she got up. The x ray films showed a large hiatus hernia with a tumor mass pressing on the lower portion of the stomach. We felt that the tumor, plus the increased intra abdominal pressure, contributed to causation of the hiatus hernia. At surgery, we repaired the hiatus hernia and removed a large pancreatic cyst. The patient has been asymptomatic since the surgery, even though she has not lost weight.

CLINICAL FINDINGS

Congenital diaphragmatic hernia almost invariably causes symptoms shortly after birth. Physicians must recognize these symptoms early. If the defect is not corrected early, the child will die from cardiorespiratory failure or the secondary effects of intestinal obstruction. Occasionally persons with congenital hernia survive—sometimes to adulthood. Even then, the lesion will eventually produce symptoms at some stage, if not soon after birth.

Esophageal hiatus hernia, by far the commonest type of diaphragmatic hernia of clinical significance, may occur at any age. This lesion seldom produces symptoms before adult life.

SYMPTOMATOLOGY

The symptomatology of diaphragmatic hernia, especially of hiatus hernia, depends on many factors, most of which interfere either directly or indirectly with the motor function of the distal portion of the esophagus and of the thoracic viscera. Factors important in producing symptoms include the size of the hernia, the organs in-

volved in the herniation, the inflammatory component in or around the esophageal lumen, and the degree of reflux esophagitis, as well as the thickness and consistency of the hiatal orifice

The classical symptom is discomfort in the upper abdomen, which is most marked when the patient lies down and which is relieved when he stands up. The usual pain is confined to the epigastrium. Its severity is variable. At times the pain is substernal and may radiate to the left arm, much like the pain associated with coronary insufficiency. To add further to the confusion, the diaphragmatic hernia may occasionally act as a trigger mechanism to produce anginal pain in patients with coronary artery disease. Retrosternal burning and a "sour stomach" are very common complaints. Dysphagia is the second most important symptom. It usually indicates some esophageal distortion or narrowing. This symptom suggests early obstructive phenomena, such as is illustrated in the following case history

CASE 3—Dysphagia developed in an 85 year-old woman during the year before surgery. At first, she was unable to swallow only solid foods, then she could not swallow soft foods, finally she could not even swallow liquid foods. Her dysphagia was accompanied by retrosternal pain that was suggestive of cardiac disease. She lost much weight over a two year period. Esophagoscopy revealed only an inflammatory reaction and stiffness of the lower end of the esophagus, but carcinoma could not be eliminated from the diagnosis. The patient was markedly anemic, although there had been no massive hemorrhage, and she had signs of nutritional deficiency. The roentgenograms showed marked obstruction because of the hiatus hernia. She did well following surgical repair of the lesion.

Besides the complaints already mentioned, there may be any degree of respiratory or gastrointestinal complaints, depending on the organs involved in the herniation. When a large volume of the stomach or intestines is herniated, there may be cyanosis. Postcordial distress is seen frequently when a considerable amount of the stomach has herniated into the chest. If the intestines are involved, there may be various manifestations of intestinal obstruction. On occasion, a complete intestinal obstruction may be the initial manifestation of diaphragmatic hernia. The significant feature of respiratory embarrassment is that it is invariably increased after eating and is severer after eating than after exertion.

CASE 4—A 76-year-old man complained of pain in the upper abdomen, but his most marked symptom was dyspnea with cyanosis shortly after eating. This condition was frequently relieved with belching, and he had a tremendous amount of belching and regurgitation following meals. He had had a massive hemorrhage four years before, but no bleeding since then. After he had operative repair of a hiatus hernia his symptoms were relieved. In the summer of 1952, he had a recurrent massive gastrointestinal hemorrhage from a duodenal ulcer, which was treated by subtotal gastrectomy.

Frequently associated with diaphragmatic hernia are such secondary changes as inhibition of growth in children on a nutritional basis, weight loss in adults because of the patient's fear of eating, and many of the symptoms relating to anemia, such as are present with bleeding from a hiatus hernia. Physicians should give more emphasis to these secondary changes, since many patients

show serious changes that are indirect effects of the primary lesion.

Physical findings are variable and depend on the size of the hernia. As a rule, the physical signs are of little significance, but in extreme cases, if enough of the abdominal viscera are in the chest, very characteristic findings may be elicited on examination.

DIFFERENTIAL DIAGNOSIS

Diaphragmatic hernias are the greatest masqueraders of all abdominal conditions. In a large series of cases, we found that there were usually three incorrect impressions before we made a correct diagnosis. Conditions most commonly confused with diaphragmatic hernias are gallbladder disease, ulcer, carcinoma of the esophagus, and cardiac disease. The physician most commonly makes the correct diagnosis if he is aware of the possibility of hiatal hernia and looks for the symptoms of it. Roentgen examination or esophagoscopy confirms his clinical opinion. Esophagoscopy may reveal evidence of late reflux esophagitis or peptic ulcer. Almost invariably the esophagoscope will pass into the cardia of the stomach without encountering any resistance. It is difficult at times to make the differential diagnosis between carcinoma of the esophagus and esophageal hiatus hernia, considerable difficulty is encountered when the two conditions occur concomitantly. Gallbladder disease in association with diaphragmatic hernia is not an unusual finding, the physician may exercise considerable judgment in ascertaining which of the two conditions is responsible for the patient's symptoms. It is very embarrassing to get no relief of the symptoms after operating on a patient and then to find later that the complaints were due to some other disorder.

Recently, a patient gave a history of having had essentially no symptoms until he suddenly began to vomit blood and to have tarry stools. Fourteen transfusions were necessary to bring him out of shock. A gastrointestinal x-ray examination showed a massive hiatus hernia and a gastric ulcer. An abdominal approach was used at surgery. The lesion appeared to the surgeon and the pathologist to be grossly malignant at this time, so a total gastrectomy was done, three days later when the pathology report on tissues was returned, it showed a benign gastric ulcer with marked inflammatory reaction around it. If the ulcer had not been visualized, the surgeon might have repaired this lesion via the thorax.

TREATMENT

In our experience, all diaphragmatic hernias, especially hiatal hernias, are medical problems until proved otherwise. Medical treatment is very helpful in evaluating the severity of the symptoms. The most important phase of medical therapy is weight reduction, as many patients are obese and even a slight reduction of intra-abdominal pressure will relieve all complaints.

CASE 5—A 45-year-old obese man complained of upper abdominal distress, belching, and heartburn, he felt some discomfort when lying down but felt relieved on getting up. The patient was put on a reducing regimen with small feedings, since his weight was reduced his symptoms have virtually disappeared.

Antispasmodics are valuable, but one should remember that occasionally the stronger antispasmodics may increase the symptoms. The patient should be instructed to avoid strenuous exercise, particularly lifting. Associated factors such as abdominal tumors, should be corrected. Many patients are awakened by severe pain at about 4 or 5 a. m. These patients are instructed to elevate the head of the bed on blocks at least 6 in. (15 cm.) in height if possible. They should also be instructed to sleep on the left side when this relieves the complaints.

INDICATIONS FOR SURGERY

As previously mentioned, most diaphragmatic hernias are medical problems. Surgery is indicated only for complications, the commonest of which is bleeding, either massive or occult, with secondary anemia.

CASE 6—An 82-year-old man had severe anemia, with a hemoglobin level of 6 gm. per 100 cc. There had been no recent tarry stools or massive hemorrhage. He had, besides the anemia, a history of chest pain which was suggestive of coronary insufficiency. The hiatus hernia and ulcer that had been seen on roentgenograms were relieved surgically, and the patient had marked relief of the anemia and of the coronary insufficiency symptoms postoperatively.

The second most common and serious complication is obstruction, which usually occurs at the junction of the stomach and the esophagus, even though a good deal of the stomach may be in the thoracic cavity.

CASE 7—A 65-year-old woman had symptoms of marked dysphagia, regurgitation, and weight loss. She had complete relief of her symptoms after surgical management, and is still living a very comfortable life.

The third indication for surgery is the presence of intractable symptoms. These symptoms are not necessarily related to the size of the hernia, occasionally, a large hernia produces intractable symptoms because of its size. On the other hand, some of the small hiatal hernias can produce pain that is not relieved with ordinary symptomatic therapy. These are usually hernias having a small rigid orifice.

CASE 8—A 67-year-old woman presented very typical symptoms of hiatus hernia. She was very obese, and she would not lose weight. She was operated on because of the intractable symptoms. She was completely relieved even though she maintained her obesity following surgery. At surgery, the dominant finding was a very tight hiatal orifice, and the hernia was firmly implanted in the thoracic cavity.

If the indications for surgery are rigidly adhered to, one will obtain good results, however, when symptoms are not specifically significant, surgery will not usually be helpful and may even be harmful. It is too easy to overlook another lesion in favor of a hiatal hernia, and we feel that the patient should have symptoms or indications sufficiently severe to justify surgery. It is extremely important to carry out complete studies on patients with uncomplicated hiatal hernias because the true cause of the symptoms may lie elsewhere. Many patients with hiatal hernias have no symptoms.

The following history represents one of the cases in which unfavorable results were obtained.

CASE 9—A 52-year-old woman complained of substernal pain that was severest when she was lying down. There was no anemia, weight loss or obstruction. The patient was operated on, but the symptoms were not relieved. There was an early recurrence of the hiatal hernia with the intestinal contents being pushed back up into the thoracic cavity. This type of patient can be managed better on a medical regimen, and in this case it would have been much better had she not been operated on even though symptoms were persistent.

In a group of 38 patients who were operated on, the ages varied from 36 to 87. In this group, the results in five were considered unsatisfactory because of a lack of relief of symptoms. There were two deaths. Both were from pulmonary emboli. It is interesting to note that in both of these instances the approach was subdiaphragmatic, and other abnormalities were treated surgically in addition to the hiatal hernia.

SUMMARY

Diaphragmatic hernia, a very common finding, may frequently present symptoms. The most important symptoms include epigastric discomfort at night relieved in an upright position, dysphagia, which occurs in more advanced cases, and anemia in a high percentage of cases. Surgery should be reserved for patients who have serious symptoms associated with hiatal hernia and particularly for cases with severe complications. If the surgical indications are rigidly adhered to, good results will follow surgical treatment of properly selected diaphragmatic hernias.

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Contact Dermatitis From Ointments—With the introduction of many new external medications in the past decade, therapeutic contact dermatitis has become a major problem in the practice of dermatology. A considerable percentage of dermatologic patients have this complication. Four widely used groups of drugs have a relatively high incidence of contact dermatitis. The commonest sensitizers belong to the group of drugs which relieve itching because they have a local anesthetic action when applied to the skin. Among these are benzocaine, surfacaine, nupercaine and others. The antihistamines used locally are a good second among cutaneous sensitizers. Theophorin, pyribenzamine, benadryl, histadyl and others show a rising tendency to produce contact dermatitis. The antibiotics, used locally have a high index of sensitivity. Penicillin, streptomycin and others may cause dermatitis. The sulfa drugs, particularly sulfathiazole, caused many cases of contact dermatitis but fortunately their sensitizing properties became so well known that they are no longer used externally to any degree.

The general pattern of the development of therapeutic contact dermatitis is almost always the same. The medication is used on the local lesion for a variable period of time, from days to months. In the beginning there may be great relief of the symptoms of the original disease. The first evidence of sensitization is usually development of a dermatitis where none was present before, as in anogenital pruritus, or the aggravation of the original dermatitis. Within a matter of days after this local aggravation occurs a dermatitis appears in a rather consistent fashion. The hands and forearms are usually involved early, then the face, especially the eyelids and ears and down to the V of the neck, then the legs and feet. In these areas there is usually an edematous, oozing, itching dermatitis. If the medication is stopped the widespread dermatitis is the first to disappear, with the most recently involved areas being the first to clear, and the originally treated areas being the last to improve.—R. Nomland, M.D., *Therapeutic Contact Dermatitis, The Journal of the Iowa State Medical Society*, April, 1953.

PRIMARY FIBROSARCOMA OF THE SKIN

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In 1924, primary fibrosarcoma of the skin was distinguished as an entity and separated from other tumors because of its characteristic clinical and histological manifestations by Darier and Ferrand.¹ It is best known as dermatofibrosarcoma protuberans. Binkley² found that this neoplasm was first presented by Sherwell to the New York Dermatological Society in 1890, and Costa³ states that Taylor also reported a case later in 1890. Many names have been given by different authors⁴ to this neoplasm of the skin. The terminology of some authors suggested a benign tumor, while that of others indicated a malignant tumor. Woringer⁵ and Senear^{6d} and his associates called this tumor benign, while Eller,⁶ Binkley,² and others believed it to be more serious.

Over 200 cases have been recorded, including 38 cases that Pack⁷ recently reported. Hoffman^{4b} was of the opinion that general surgeons excised the tumor because of the clinical impression that the tumor was extremely malignant and that the pathological diagnosis of fibrosarcoma, which was usually rendered, greatly overemphasized the degree of malignancy. Binkley² stated that pathologists frequently mistake this tumor for either a neurofibroma or a neurogenic sarcoma or give the diagnosis of fibrosarcoma, not specifying the type. Michelson⁸ reported three different pathological diagnoses of the same tumor. The differences in nomenclature and interpretation of the pathological changes partially account for the apparent rarity of reports in the literature of this tumor.

The commonest sites of this tumor are the abdomen and back, but it has been described on every part of the cutaneous surface except the palms and soles. Once the tumor has developed, it varies greatly in size and shape. An early lesion may take one of several forms. 1 It may be almond-sized. 2 It may grow to be as large as a cantaloup and may consist of several pedunculated parts. Some of these peduncles are connected to the main tumor by a narrow stalk, others are attached by a broad base. 3 It may be a firm, broad, intracutaneous plaque with a small mound-like elevation superimposed. These tumors develop in the cutis and subcutis as small, hard, infiltrating nodules that increase in size and number to form a firm sclerotic plaque. This plaque may extend deeply, may invade the underlying adipose tissue, and has been known to become adherent to underlying fascia. This infiltration acts as a foundation that the protuberant growths utilize for support. The color of the external surface of the tumor varies, it may be the color of normal skin, pink, or red, depending on the vascularity of that particular tumor. The surface at first is smooth, but, later, the elevated growths make their appearance and the epidermis covering the tumor becomes thinned and eroded and, finally, ulcerated. These tumors are generally hard, almost cartilaginous, but may become soft after erosion or ulceration. Early recurrence and rapid growth

often follow incomplete removal. These tumors are usually painless. Hemorrhage may occur during the growth of the tumors, and, eventually, gangrene may result. The only satisfactory method of treatment is complete and wide excision. A considerable zone of normal tissue must be included in the excision to insure a permanent cure. Senear and his co-workers^{4d} state that the lesion is practically asymptomatic and does not affect the general health. Becker and Obermayer⁹ stated that the rare condition of dermatofibrosarcoma is practically asymptomatic and does not affect the general health of the patient nor does the tumor metastasize. Binkley, however, reported several instances in which metastases occurred and cited a case in which the tumor was first noted in 1890, it was excised but recurred five times at the same site. His patient died of tumor metastases in 1928. Hertzler^{4a} described fibrosarcomatous tumors of the skin and stated that these tumors could not be rare as, in 25 years, he found 22 out of 5,000 tumors to be this type. He further stated that complete excision of the tumor results in a permanent cure, that, if recurrence follows inadequate removal, a wide, second excision may still result in a cure, and that, even in cases in which there is regional metastasis, the involved lymph nodes may be removed successfully. Hertzler also reported that, in an instance in which seven operations had been performed for such a neoplasm, the patient was well some 20 years later. Internal metastases have also been reported by other authors.¹⁰ Patients have been recorded in whom this condition lasted as long as 50 years. Several such tumors have occurred in old surgical scars, but these may have been local recurrences.

Lymph node and pulmonary metastases constitute the chief causes of the fatal termination of fibrosarcomas. A most important clinical procedure is the routine roentgenographic examination of the chest in every patient suspected of having malignant disease, including fibrosarcoma of the skin. Saltzman,¹¹ in discussing the prognosis of fibrosarcoma, stated that the prognosis is more favorable when the tumor arises from the skin. He arrived at this conclusion from a study of 80 patients treated between 1936 and 1948.

Lamb, in discussing Binkley's paper, stated that, in dealing with a malignant tumor of this type, excision should be preceded by heavy doses of roentgen irradiation and that wide dissection should be followed by further irradiation. A fibrosarcoma, however, is a highly radioresistant tumor,¹² and I feel that irradiation therapy is contraindicated. Wide excision is a more definitive procedure and insures a cure, provided metastasis has not already occurred. Furthermore, the malignant potentiality of this tumor is extremely low, and, even in known cases of metastases, the life expectancy is quite long. To risk the possibility of a radiodermatitis as a consequence of the large roentgen doses needed for treatment of fibrosarcomas seems unwarranted. Irradiation may result in the ultimate development of squamous cell carcinoma on the damaged skin, which is a much more malignant neoplasm than the original fibrosarcoma.

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Because of space limitations all of the bibliographic footnotes have been omitted from THE JOURNAL and will appear in the author's reprints.

Pathological Diagnosis—Mopper and Pinkus¹³ feel that the diagnosis of fibrosarcoma is frequently suggested by the history and physical examination and that histological studies are confirmatory. They were in agreement with Ormsby and Montgomery's¹⁴ statement that differentiation lies midway between the ordinary fibrosarcoma and the dermatofibroma lenticulare, although individual microscopic fields could be selected that resemble one or the other. Examination of several sections of the tumor, however, will reveal the characteristic picture. Basically, the composition is that of a low grade fibrosarcoma, but there may be large lacunas and myxomatous changes.

Cause—The cause of fibrosarcoma is unknown. While trauma has been associated with a number of cases, its incidence is relatively low and may have been only coincidental. Binkley² theorized that, because of the unusual predilection of these tumors to be located near the right or left of the midline, there was possibly a relationship to the embryologic mammary ridge. Many tumors have been recorded that do not conform to this concept, since their location had no relation to the mammary ridge. The possibility of misplaced embryologic mammary ridge tissue must not be overlooked, but in very few cases has the location of this tumor had any relationship to mammary tissue. Also, the absence of epithelial elements in these tumors is a significant argument against this theory.

Degree of Malignancy—This tumor must be considered to be a malignant growth, both locally and systemically. The criteria for malignancy include invasion and metastasis or both, and this tumor satisfies these conditions. Its malignant potentialities are much less than those of a fascial fibrosarcoma, and the long duration of many of these tumors attests to their relatively low malignant potentialities. Several deaths have been proved to be the result of metastases, particularly pulmonary, from fibrosarcoma. Tumors that approach the fibroma in histological appearance are much more benign than the more cellular lesions at the opposite end of the spectrum, namely a spindle cell sarcoma. Regardless of the relative benignity of the individual tumor, if it is not a fibroma, it must be considered to be malignant.

REPORT OF CASES

CASE 1¹⁵—A white man, 41 years of age, had noticed a small area of numbness on his back 20 to 25 years before admission to the hospital. About 10 years before admission three small nodules developed in the medial border of the lesion. These slowly enlarged and coalesced to form the tumor mass present on admission. Examination showed a firm, brownish red, intracutaneous plaque in the region of the left scapula. The lesion measured 7 by 9 cm, was slightly elevated, and showed, at the medial border, a group of nodules that measured from 1 to 1.5 cm in thickness. Histological studies indicated that this tumor stood at the benign end of the spectrum that this peculiar group of dermatofibrosarcoma presents, highly cellular lesions, indistinguishable from spindle cell sarcoma, are at the other end.

CASE 2¹⁶—A 49 year-old obese Negro woman had a nodular tumor on the anteromedial aspect of the left thigh. The lesion was reddish, measured 5 by 3 by 4 cm, and was composed of several confluent protuberances. The skin covering the tumor was thin and shiny, with dilated blood vessels. The skin for a distance of 2 cm around the base was infiltrated by a firm plaque that extended into the subcutaneous pan-

niculus. The patient had first noticed a small area of redness in this region nine years before admission. This grew slowly at first and more rapidly in the year preceding admission. Bleeding was serious enough to cause the patient to seek medical assistance. A biopsy and microscopic examination led to the diagnosis of fibrosarcoma of the skin. The tumor was excised widely.

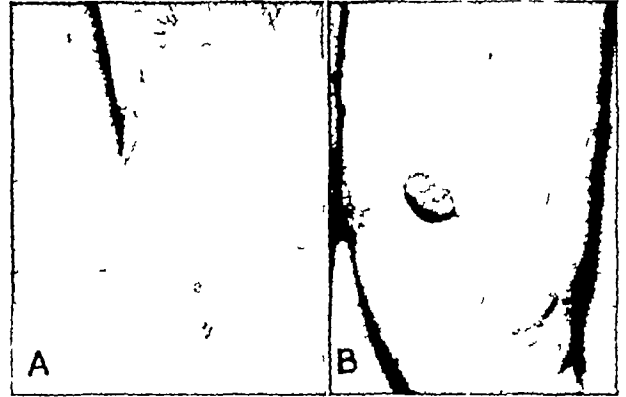


Fig 1—A the tumor in case 1. There were no protuberances and the lesion was primarily an intracutaneous plaque. B the tumor in case 2. This was an early protuberant lesion.

CASE 3¹⁷—The history of this patient was presented to the Detroit Dermatological Society March 15, 1927. This 38 year-old man had noted a small mass on the left side of the forehead some 10 years before. It slowly enlarged, and it was incised and a serous fluid was drained from it. Other masses appeared on the forehead, and these too enlarged. They recurred after excision on two separate occasions. On March 15, 1927, there were firm, nodular masses surrounding the scar left by the excisions and an erythematous tumor at the border of the scalp. The surface of the nodules was telangiectatic. The pathologist reported the tumor to be a nonencapsulated cellular fibroma, suggestive of fibrosarcoma. The photograph of this patient (fig 3) was taken some time after he was presented to the society. The clinical aspects of this case are very similar to those in a case reported by Costa.³

CASE 4—A Negro man, 67 years of age, was admitted to Detroit Receiving Hospital on Dec 12, 1946. He stated that he was in perfect health until nine months before, when a

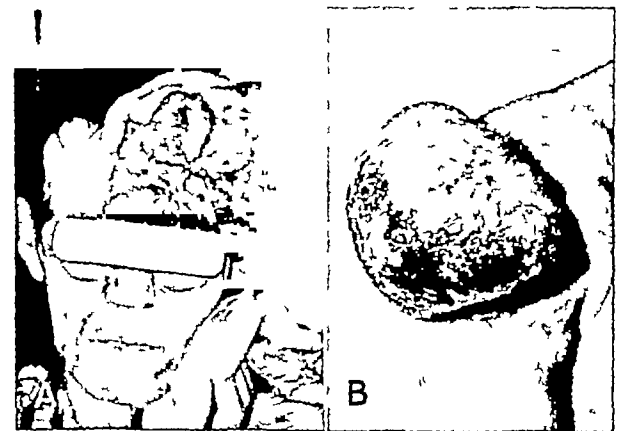


Fig 2—A the tumor in case 3 which is an unusual demonstration of the protuberances that sometimes occur in this disease. B the cantaloup-sized tumor on the right upper arm of patient in case 4. Note lymph node enlargement from metastases.

small tumor developed on the right upper arm. It progressively enlarged. Examination revealed a large, fungating growth about 2.5 in (3.8 cm) in diameter and approximately the shape of an orange. It was located on the lateral aspect of the

right upper arm near the shoulder joint. This fungating mass was a bright reddish purple color and was attached to the skin on a broad base. This tumor was excised on Dec 17, 1946, and there was some gangrenous tissue below the tumor that extended down to the deltoid muscle but did not involve it. The diagnosis rendered after pathological examination was myxofibrosarcoma.

This patient was admitted to the Wayne County General Hospital in December, 1947. Examination at that time revealed a large lobulated mass on the right shoulder girdle. The skin surface was ulcerated. The mass measured 13.5 by 11.5 by 11 cm. It was attached by a constricted, broad pedicle measuring 9 cm in diameter. Several large axillary nodes were palpated. The right arm was amputated above the tumor. After study of the tissue the diagnosis of metastatic, highly malignant myxofibrosarcoma was made. A roentgenogram of the chest made on Oct 20, 1947, showed no evidence of pulmonary metastases. There was no bony involvement.

The patient was readmitted on May 4, 1948, to the Wayne County General Hospital. At that time there were several nodules at the site of the amputation. A roentgenogram of the chest made on May 4, 1948, showed multiple metastases. The patient died of uremia on May 30, 1948. Slides of the tumor sections that were made in December, 1946, were reexamined recently and interpreted as being, in some fields, an example of primary fibrosarcoma of the skin. Other microscopic fields showed more edema, while others showed inflammatory foci secondary to ulceration and infection. Several areas showed a liberal sprinkling of multinucleated cells, but this did not change the diagnosis. The protuberances of the lesions were certainly quite visible in these sections.

CASE 5—This man had had a growing mass at the base of the left side of the neck for the seven or eight months preceding admission. It had grown quite rapidly in the last two months before admission. The tumor was in an area from



Fig 3—Patient in case 5. Note intracutaneous metastatic lesion.

which a similar growth had been removed some 37 years previously in Greece. The patient at that time was 15 years old. His general health had otherwise been good. Physical examination revealed at the base of the left side of his neck, anteriorly, a firm mass that was larger than a fist. No pulsation was felt. Roentgenographic studies showed a soft tissue mass, no bone destruction, and a normal chest.

The tumor was excised on Feb 12, 1948, and the skin was found to be involved with several tumor nodules. The pathologist reported that this tumor was a spindle cell sarcoma, probably of neurogenic origin, and that it was apt to recur locally but not apt to form metastases. Postoperatively, the patient was given 36 deep x-ray treatments. He was readmitted to the same hospital on Aug 11, 1949, with a large fungating mass.

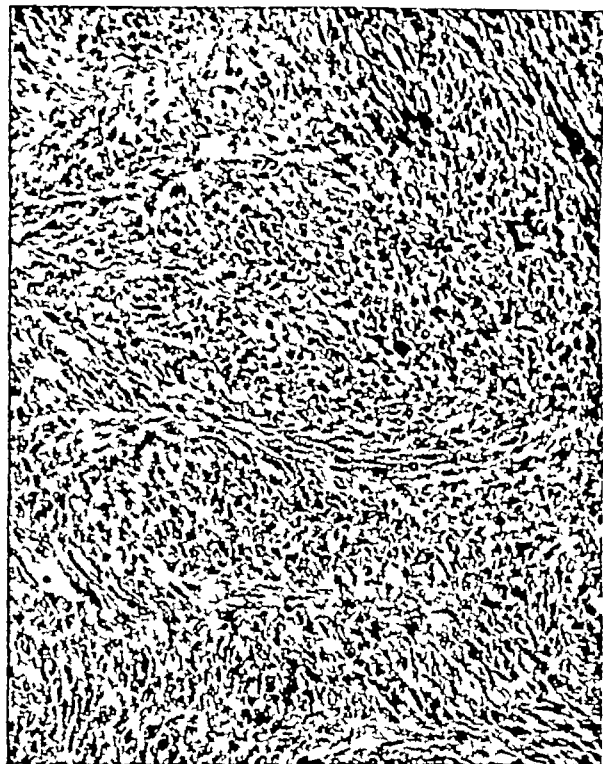


Fig. 4—High power magnification of a cellular section of primary sarcoma of the skin.

on the left side of the neck and chest that had recurred just eight months previously. There was moderate ulceration and bleeding. A biopsy indicated a myxofibrosarcoma. On Oct 10, 1949, prior to surgery, the patient was given thiopental (Pentothal) sodium at 12.15 p.m. He was pronounced dead at 12.17 p.m. Slides of tumor sections were recently reexamined, and interpreted as being compatible with primary fibrosarcoma of the skin. Areas were present that were quite fibrotic, while others showed a marked myxomatous change. Several fields revealed characteristic fibrosarcoma of the skin.

SUMMARY AND CONCLUSIONS

The term primary fibrosarcoma of the skin is preferred to dermatofibrosarcoma protuberans or other previous designations because of its simplicity. This term is also adequate to cover the cases in which protuberant growths are not present. The prognosis of dermatofibrosarcoma protuberans is much better than that of other fibrosarcomas, since its metastatic tendencies are slight and long delayed. It must, however, be considered a malignant tumor.

Fibrosarcoma of the skin has a strong tendency to form large protuberant masses, and wide surgical excision is the treatment of choice. Roentgen or radium therapy should not be employed, as the large doses required may produce a radiodermatitis with possible development of a more serious malignant growth.

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ALOPECIA LEPROTICA: ITS RELATIONSHIP TO TRANSMISSION OF LEPROSY

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There is ample evidence that there are distinct clinical variations of leprosy in different world areas.¹ The role of host susceptibility or resistance, racial factors, and climatic and other geographical conditions in producing these variations remains an unsettled problem.² In this paper a correlation will be made between one variant, alopecia leprotica, and the religious customs and folklore of the countries influenced by Buddhism. Fortunately, a natural experiment on babies is found in certain regions of the world where Buddhism is practiced, allowing the leprologist to use babies as a comparative test group of the contagiousness of leprosy, with the babies in the remainder of the world as controls. The basis of the experiment rests in the widespread custom among the Buddhists of shaving the heads of the newborn. Evidence will be presented to show that leprosy is contracted during infancy or childhood and not primarily in maturity.

CULTURAL BACKGROUND

Buddhist priests migrated from China through Korea to Japan approximately 1,300 or 1,400 years ago. With this migration the custom of clipping the scalp of newborn infants was introduced into the latter areas. When the razor became readily available for general use about 200 years ago, the habit of clipping was replaced by shaving the heads. This ritual was performed on the newborn on certain days, namely, at 7 days of age when the infant's umbilicus was believed to be drying up satisfactorily, at 30 days when it was felt that the baby would survive, and at 90 days when solid or semisolid foods were first given. Both boy and girl babies were shaved, the girls until they were 4 years of age and the boys until they were 8 or 9 years of age. In a few instances the custom was practiced on boys to the age of 12.³

The predominant religion in Japan is Buddhism, which is divided into five different sects. The shaving custom is still observed in certain prefectures, especially in the rural areas and among the older age groups. The younger generation, particularly in Tokyo, is not well acquainted with this ritual. Christianity, as yet, has had little influence on this custom in regions where it is extant.⁴

The religious culture in Korea is derived from China, with two predominant religions, Buddhism and Confucianism. Among the followers of each the habit of shaving the head of the newborn is conventional. There is, in addition, a small Christian group. The Formosans migrated primarily from Fukien Province, China. They forced the original native group into the hills and mountainous regions of the island. As a consequence, the predominant religions are Confucianism and Buddhism and the practice of shaving the scalp of infants is universally observed. In China the custom of shaving the head of the newborn is an accepted universal procedure and is performed at 30 and 90 days.⁴

METHODS AND MATERIAL

Leprosariums in Japan, Korea, and Formosa were visited to determine whether the incidence of alopecia leprotica was greater in relation to the total number of patients in the leprosariums of these countries than in other countries where the practice of shaving the scalp of newborns is not observed. Careful examination in each case was performed to rule out baldness from other causes, particularly the typical type of male baldness (alopecia senilis). Characteristically, lepromatous alopecia could be grouped into three types. The first was an almost complete baldness, with only a few patches of hair remaining (fig 1). The second type presented a moth-eaten appearance with scattered involvement of the total scalp (fig 2). The third group showed a patchy involvement, varying in size with intervening areas ap-

TABLE 1—Incidence of Leprotic Alopecia in Inmates of Leprosariums in Some Asiatic Areas

Place		No of Lepers	No with Leprotic Alopecia	Percentage
Japan	Male	378	180	49.18
	Female	211	82	38.86
	Total	589	268	45.50
Korea	Male	304	72	23.70
	Female	250	82	32.80
	Total	554	154	27.62
Taiwan (Formosa)	Male	137	35	25.55
	Female	71	11	15.49
	Total	208	46	22.11
Chinese soldiers	Male	38	11	28.95
	Female	517	304	58.80
	Total	1,308	479	36.62

pearing grossly normal (fig 3). The latter type was more difficult to recognize, especially in long-haired females where the involved areas could be easily hidden.

RESULTS

The total Japanese population in the leprosarium situated at Tama Tenshoen, near Tokyo, Japan, was 1,100, of which 700 were males and 400 females. In this institution 589 lepers were examined, including 378 males and 211 females. Of these, 186 of the men and 82 of the women showed typical scalp involvement suggestive of lepromatous origin (table 1).

Two leprosariums were visited in Korea, one in the vicinity of Taegu and the other near Pusan. Of the total

From the Letterman Army Hospital.

Owing to lack of space some of the bibliographic references have been omitted from THE JOURNAL and will appear only in the authors' reprints.

3. Yanagida K. Professor of Anthropology, Tokyo University, Tokyo. Personal communication to the authors.

4. General Chen Li Kai. Surgeon General, Chinese Army, Taipei (Formosa), Taiwan. Personal communication to the authors.

population of approximately 1,500, 523 were examined, 264 of these were male and 259 were female. Seventy-two men and 82 women showed definite lepromatous alopecia (table 1).

Formosa has one leprosarium at Taipeh. Of the 480 inmates, 55 were Chinese soldiers from the Chinese



Fig. 1—Japanese man with almost complete baldness

Nationalist Army. At this institution 208 lepers, 137 male and 71 female, were minutely examined. Thirty-five men and 11 women showed lepromatous alopecia. Of the 49 Chinese soldiers examined, 11 were found to have scalp involvement of leprosy (table 1).

Histological verification of the clinical diagnosis was obtained by scalp biopsy in 20 cases selected at random in the Tama Tenshoen Leprosarium. The microscopic picture was similar in all cases, showing marked lympho-



Fig. 2.—Japanese man with baldness with a moth-eaten appearance

cytic infiltration, persistent involvement of the sweat glands, and the presence of varying numbers of macrophages. In 15 of the sections the acid-fast bacillus was

easily demonstrated (fig. 4 and 5). In all sections the lesions were considered lepromatous.

In the final count of 1,369 persons with leprosy examined in three countries (Japan, Korea, and Formosa) where shaving of the newborn's scalp is practiced, 479 patients (35%) were found to have alopecia leprotica. The incidence in the male was only slightly greater than in the female (37% to 32%). The highest incidence, 49% and 38%, was found in the Japanese males and females, respectively (table 1).

Statistics from 11 countries where the custom of shaving the heads of infants is not present (Mexico, Venezuela, Philippine Islands, Sumatra, Egypt, Palestine, Norway, South Africa, Argentina, United States, and Hawaii) have been used in establishing the control group. Of 12,585 patients examined, only 34 were found to have alopecia leprotica. This is an incidence of less than 0.3% (table 2).

In the Philippine Islands there have been no reported cases of alopecia leprotica. In order to contrast the histological sections obtained from patients with this abnor-



Fig. 3.—Japanese woman with the patchy type of baldness

malty, biopsy specimens from the Tama Tenshoen patients were compared with scalp biopsy specimens taken by Manalang from 48 Filipino patients.⁵ In each instance of the latter the microlepromatous lesions extended from the hairline upward, with normal tissue present near the vertex of the scalp. The sections from the Japanese scalps showed a macrolepromatous lesion.

COMMENT

It appears evident from the data presented that the incidence of alopecia leprotica among patients with leprosy is far greater in those countries where shaving of the scalp of the newborn is a common practice than where it is not. In this regard, the striking difference between the microscopic findings in scalp biopsy specimens taken from Japanese with lepromatous alopecia and from Filipinos without this clinical manifestation is of interest.⁶ Large infiltrations of the face and ears, with subsequent loss of eyebrow hair, occur in all races and are a usual occurrence in the disease. The scalp invasion among the natives of Japan, Korea, and Formosa might theoretically

5 Hayashi F. The Anti leprosy Works in Various Parts of the World as I Have Seen Them. *J. Pub. Health A. Japan* 10:113 (Sept.) 1934.
Manalang C. The Transmission of Leprosy. Havana. Cuba. Memoria Fifth International Leprosy Congress 1948. p. 758.

be due to a greater virulence of the organisms, lesser resistance of the scalp, or greater dosage of the organism. These possibilities appear unlikely when one considers the heterogeneity of the test groups and the geographical separation of these groups. The common factor in all cases appears to be the larger dosage of the organism, for trauma (including shaving) with complete removal of the natural protecting barrier of the hair and the inevitable production of small nicks and cuts would appear to predispose to heavy infection. It is clear that scalp infection is external in origin and not vascular from a central focus.

In numerous infectious diseases the etiological agents characteristically escape from the host through the secretions or excretions of the affected organs or glands to infect new victims. In leprosy the pathological involve-

TABLE 2—Incidence of Leprotic Alopecia in Patients with Leprosy in Various Countries

Places	Leprosarium	No of Lepers	No with Leprotic Alopecia
Mexico Asilam	Pedro Lopez	33	
Venezuela (Caracas)		160	
Philippines		6 000	0
Sumatra	Pelantoengan	107	10 (6 Chinese & Malayan 5 European & Eurasian)
	Suerabaya	151	1 (Native)
	Sungai Buloh	1,200	1 (Chinese)
Sumatra	Hoeta Salem	500	1
	Laoe Si Momo	400	1
	Belawan Deli	450	4 (3 Chinese, 1 Javanese)
Egypt			0
Palestine	Jerusalem	25	1
Norway	Bergen	33	0
South Africa	Pretoria	976	6 (5 Native 1 Cape Negro)
Argentina	Muniz	182	3
United States	Carville	350	5 (2 white, 3 mixed blood)
Hawaii	Kalaupapa Molokai	450	1 (Japanese)
Total		12,553	34

ment of the sudoriferous glands and nerves is well established⁸, consequently, the infectious agent must at some time leave the host through the medium of sweat gland secretions. It seems likely that leprosy is spread in infancy by prolonged and frequent skin-to-skin contact between the child and the person with leprosy. The distribution of initial skin lesions in children at the Culion Leper Colony, Philippine Islands, was found to correspond very closely to those exposed parts of the body that were brought into direct pressure contact when the child was carried during infancy. As a rule, the mother, or occasionally another member of the family, is accustomed to carry the child in her bare arms with her hands, holding it by its buttocks or upper thighs. The most frequent sites of skin lesions found in these children were on both cheeks of the face, the lower posterolateral area of the arms, elbows, and upper medial area of the forearms, the external parts of both buttocks, the upper anterolateral thighs, both knees, and the anterior parts of the upper legs.⁹ With some variation, these areas coincide

fairly well with the most frequently involved areas in adults with leprosy.

The natural history of the transmission of leprosy was given considerable elucidation by the important works of Brazil investigators¹⁰ and Lara.⁹ The former found that the disease developed in over 70% of the children affected prior to the third year. In Culion, Philippine Islands, Lara repeatedly examined 770 children over a period of years in an effort to determine the pathogenesis of leprosy in these cases. The children ranged in age from 1 to 9 years. Lara estimated that at least 50% of exposed children of leprosy persons would show manifestations of the disease by the time they were 5 years old. He felt that the rate was identical for both sexes. This is in marked contrast to the 600 children of nonleprosy employees of Culion Colony. During the past 25 years not a single case



Fig. 4—Biopsy specimen of scalp under low power magnification showing atrophy of hair follicles and lepromatous infiltration.

of leprosy has been found in these children despite yearly examinations. The employees and their families live in close proximity to the colony proper.

Similar evidence that direct contact is necessary for leprosy to be transmitted to children has been found in many parts of the world. In Punjab, India,¹¹ children of leprosy parents are reared separately from their parents. In 30 years only one case of leprosy has developed among these children. Brazil has, for over 20 years, separated infants at birth from the leprosy parent.¹² No cases of leprosy have developed among these infants.¹³ In the Kalaupapa Leper Settlement, Hawaii,¹⁴ the infant was likewise separated from the leprosy parent as soon as it was born. The children were placed in a nursery within

9 Lara C B. Leprosy in Infancy and Childhood. Monthly Bull. Bureau of Health Manila. P 1 24: 61-89 (March-April) 1948.

12 Souza Campos N. Personal communication to the authors.

14 Hasseltine H E. The Results of the Removal of Children Born of Leprosy Parents to Clean Environment and Their Maintenance Therein. U S Pub. Health Bull. 141: 55-72 (July) 1924.

the colony proper and were attended by supposedly healthy Hawaiians (largely relatives of the inmates). The latter were allowed to mingle freely with the inmates as companions and helpers. Later some of the children were released to relatives and others who were supposedly nonleprosy. Of 219 children who were thus studied, leprosy subsequently developed in 10.¹⁵ Possible leprosy was reported in 25 others. It is believed that the nature of care given these children did not exclude recurrent contact with persons with unapparent leprosy.

Human beings afflicted with leprosy, particularly when in the active lepromatous form, are generally recognized as the principal, if not the only, source of infection.¹⁶ An interesting survey of the entire population of two communities in the Philippine Islands was made by Rodriguez and others.¹⁷ They found that the incidence of

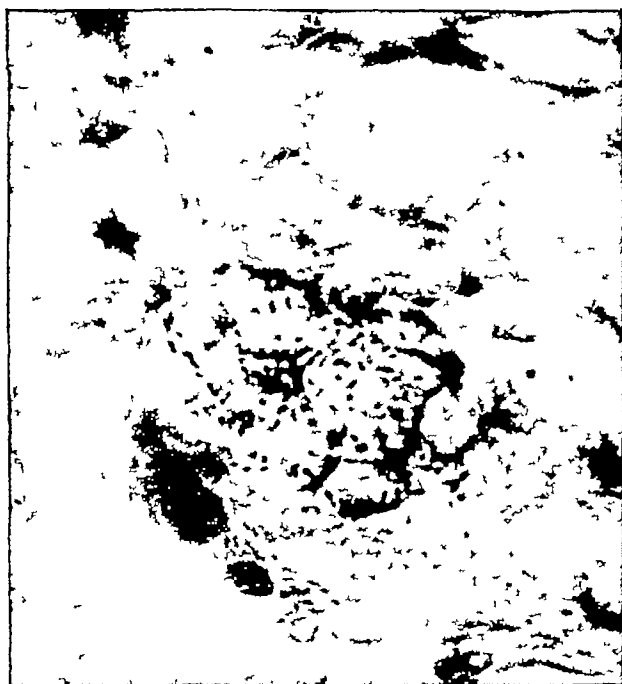


Fig 5—Specimen under high power magnification showing a typical lepra cell with lepra bacillus

infection in persons exposed to cases of leprosy in the household was four times the rate in the whole community. One of these communities had a high leprosy incidence rate, the other city a low rate.¹⁸ A Japanese study¹⁹ of 21 villages near Sendai showed a leprosy rate of approximately twice the expected rate. It was found that all 66 patients lived in 44 houses among 53 blood relatives. The other 1,707 houses were free of leprosy. Numerous other observers²⁰ have found that leprosy is not regularly distributed in any infected area,

but tends to occur in groups in certain villages, whereas nearby settlements may escape the disease entirely. In most instances there is an increased family occurrence, whereas some leprosy persons with no family history of leprosy may have a relative admitted with the disease afterward.²¹

Environmental factors are felt to influence the transmission of leprosy. Such variants as a hot, humid climate, overcrowding, poor housing, and insufficient food and clothing have been implicated. Nevertheless, studies conducted in areas in both the Philippine Islands²² and India²³ have failed to support this contention. Regions that were adjacent to each other and that resembled each other in most respects, including climate, housing, diet, poverty and filth, were found to have markedly different prevalence of the disease. A significant number of cases of leprosy have been found among the well-to-do native and European families in Dutch Guiana,²⁴ which would appear to vitiate poor environmental factors as contributing factors.

Evidence to support the contention that leprosy may develop in previously healthy adults does not appear to be nearly as conclusive as that referable to susceptibility in children. The incidence of development of leprosy among presumably healthy adults in close contact with the disease, such as attendants and relatives at various leprosariums, is similar to, but not greater than, the incidence of epidemic foci in the general population. There has never been an instance of transmission of leprosy to any attendant at the Saint Louis Hospital (Paris),²⁵ the Palesco Leprosy Colony (Panama),²⁶ or the National Leprosarium (Louisiana).²⁵ The rate of infection in husband or wife is similar to the leprosy rate for the country.²⁷ It would appear, thus, that conjugal or other intimate adult contact with a leprosy person may have no epidemiological significance. Attempts to transmit leprosy from man to man by inoculation in 145 cases²⁸ failed in every instance but one. The patient in whom leprosy developed had a leprosy son and other relatives with the disease and it is not certain, therefore, that the disease was absent at the onset of the experiment.²⁹ There are, in the literature, a few reports of inoculated infections in isolated instances.³⁰ Hasseltine and others reported a few cases, in which, on the basis of history alone, they felt the disease was contracted by adults.³¹

In view of the rather equivocal evidence as to primary adult infection with leprosy as compared to the much more abundant evidence supporting the development of childhood leprosy, the work of Cochrane³² dealing with the tendency toward regression of leprosy and its self-healing nature in early infection is of interest. The recent report from Brazil³³ corroborates the previously reported findings of regression and in some instances progression of leprosy lesions. About 65% of all children with the disease show healing or resolution of all recognized lesions without recurrence for from 1 to 13 years.³⁴ Almost all of them will show regression for as long as five years.³⁵ It may be postulated that a certain number of cases that are first recognized in adult life may very well represent the reappearance of a lesion that had lain dormant for many years.

18b Guinto R S, Doull J A, Bancroft H and Rodriguez, J N. A Field Study of Leprosy in Cordova, Philippines. Resurvey in 1941 After Eight Years. *Internat J Leprosy* 19: 117-135 (April-June) 1951.

21 Denney O E. A Statistical Study of Leprosy in the Philippine Islands. *JAMA* 69: 2171 (Dec 29) 1917.

25 Strong R P. *Stitt's Diagnosis, Prevention and Treatment of Tropical Diseases*, ed 6. Philadelphia: Blakiston Company, 1943, p 826.

28 St M, Mouritz, A A. Human Inoculation Experiments in Hawaii. Including Notes on Those of Arning and of Fitch condensed by H W Waide. *Internat J Leprosy* 19: 203-215 (April-June) 1951.

33 Souza Campos N and De Souza Lima, L. *Leprosy in Infancia*. Rio de Janeiro, Brasil: Servico Nacional de Leprosy, 1950, p 46-70.

SUMMARY

In leprosaniums in Japan, Korea, and Formosa 1,369 patients with leprosy were examined for alopecia leprotica. In these countries the habit of shaving the scalp of newborn infants is a common practice. The lesion was found in 479 patients, an incidence of 35%. This is compared with an incidence of 0.3% reported in 11 countries where shaving the hair of infants is not customary. Evi-

dence has been presented to show that leprosy is contracted by an infant through skin-to-skin contact with a leprosy person. Contraction of leprosy by healthy adults is rare, and most reported cases are open to question. The data presented corroborate the findings of adult immunity and childhood susceptibility. The control of leprosy is effected by the separation of the leprosy person from the infant or child.

TREATMENT OF MELANIN HYPERPIGMENTATION

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and

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Abnormal increases in melanin pigmentation of the skin have always presented a difficult problem to man because of their cosmetic and social significance. Disfiguring pigmentation of the exposed areas may have important and lasting effects on the emotional well-being of the patient. In addition, the quantity of melanin in the skin may determine the status of a person in a given society. To our knowledge little stimulus for the study of the mechanism of melanin formation has resulted from attempts to explain or modify the great variations in pigment seen in different races. Rather, the stimulus for investigation has come from observations on abnormal subjects including patients with Addison's disease, vitiligo, and hyperpigmentation of pregnancy, and from attempts to explain melanin production in plants, insects, and marine animals. As a result of these studies, much is known of the process by which the amino acid tyrosine

results obtained by several dermatologists using this preparation in the treatment of 84 patients with melanin hyperpigmentation.

TERMINOLOGY

Before the presentation of clinical data, the terminology used to describe abnormal conditions of melanin hyperpigmentation will be considered. Only the commoner disorders will be discussed, as a detailed report will be presented elsewhere.³ Throughout this report the term *melasma* will refer to hyperpigmentation occurring usually on the exposed areas, such as the face, neck, hands, and arms, associated in some instances with an increase in serum copper and urinary melanocyte stimulating hormone (MSH).⁴ These changes may be related to increased pituitary gland activity. Among the conditions associated with disorders of hyperpigmentation designated as *melasma* are *chloasma*, *Riehl's melanosis*, *Civatte's disease*, *Addison's disease*, and *chronic malnutrition*. When a known underlying condition is associated with the *melasma*, such as pregnancy or Addison's disease, the terms *melasma (pregnancy)* or *melasma (Addison)* will be used. If no physiological disturbance is evident and there is simply hyperpigmentation of the exposed areas, only the single term *melasma* will be used.

The common term *freckles* rather than *ephelides* will be used to designate the ordinary small, flat, pigmented macules usually seen on areas exposed to sunlight. Microscopically these lesions show or y increased pigment in the basal cell layer without increase in the number of melanocytes. A *cafe au lait* spot indicates an isolated pig-

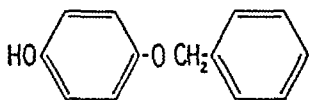


Fig. 1—Monobenzyl ether of hydroquinone.

is catalytically oxidized by tyrosinase, a copper-containing enzyme, to melanin in the cytoplasm of melanocytes of the skin, eyes, and leptomeninges.¹

Attempts to treat areas of melanin hyperpigmentation have been manifold. Such agents as ammoniated mercury and hypochlorite bleaches have been used frequently but without success. About 14 years ago a group of Negro workers were noted to have depigmentation of the hands after wearing rubber gloves.² It was found that monobenzyl ether of hydroquinone (fig. 1), an antioxidant for rubber, was the active agent that produced the depigmentation. Since then, occasional reports have appeared on efforts to use crude monobenzyl ether of hydroquinone therapeutically to treat disorders of melanin hyperpigmentation. Although treatment was not very successful because of irregular results and sensitization reactions, some dermatologists continued using the drug in ointment form. In the past few years a purified and finely dispersed concentrated preparation of monobenzyl ether of hydroquinone (*Benoquin*) has become available for clinical study.[†] Following is a report of the

Because of lack of space some of the bibliographic references have been omitted from THE JOURNAL and will appear in the authors' reprints.

From the Department of Dermatology, University of Oregon Medical School. The work reported on in this paper was carried out by the authors during the past four years at the following institutions: Western Reserve Medical School, Cleveland; Mayo Foundation, Rochester; Minn. University of Michigan Medical School, Ann Arbor, Mich.; and University of Oregon Medical School.

* In accordance with terminology adopted at the Pigment Cell Conference, New York, 1951, the term *melanocyte* will be used to designate the mature pigment-forming cell thus replacing the older term *melanoblast*.

1. Lerner, A. B. and Fitzpatrick, T. B. *Biochemistry of Melanin Formation*. *Physiol. Rev.* 30:91, 1950.

2. Oliver, E. A., Schwartz, L., and Warren, L. H. *Occupational Leukoderma*. *Preliminary Report*. *J. A. M. A.* 113:927 (Sept. 2) 1939.

3. Fitzpatrick, T. B. and Lerner, A. B. To be published.

4. Rattner, W. H., Lerner, A. B., Fitzpatrick, T. B., and Wright, P. A. To be published.

mented macule, small or large, which shows the same histological picture as a freckle. One or more *cafe au lait* spots may be found in approximately 10% of the population; however, they may be numerous in patients with neurofibromatosis. A lentigo is a small, darkly pigmented macule that occurs on the upper parts of the body and is not related to sunlight. Histologically, there is proliferation of melanocytes at the epidermal-dermal junction, and the lesion may be considered a junctional type pigmented nevus. Lentigo senilis, or senile lentigines, are the "liver spots" usually seen on the dorsal surfaces of the hands and arms of light complexioned persons over 50 years of age. The term nevus will be used to refer to a pigmented nevus consisting of a papule with or without hair that microscopically shows groups of benign melanocytes in the epidermis or dermis. Sharp distinctions among these diagnostic terms cannot always be drawn. For example, while some cases represent transitions between freckles and lentigines, others fall between lentigines and nevi.

CLINICAL CASES AND RESULTS

Brief case histories of the 25 patients treated for melanin hyperpigmentation are presented. Included are 12 patients with melasma, 2 with berlock dermatitis, 3 with nevi, 1 with lentigo senilis, 3 with *cafe au lait* spots, 2 with generalized lentigines, and 2 with freckles. Of these 25 patients, 18 showed a good clinical response. Two became sensitive to the preparation, and treatment was discontinued. In one of these two patients, an excellent depigmenting response was obtained. In most of our patients treated for melasma of unknown origin and *cafe au lait* spots, melanin pigmentation decreased, but this was not as striking as that observed in generalized lentigines, severe freckling, berlock dermatitis, and melasma (Addison).

Patients Treated with Twenty Per Cent Monobenzyl Ether of Hydroquinone (Benoquin)

Diagnosis	No of Patients Treated	No of Patients Showing Improvement	No of Patients Showing No Improvement
Melasma	39	33	6
Berlock dermatitis	6	4	2
Undelineated and miscellaneous melanoderma	13	9	4
Nevi	6	1	5
Lentigo senilis	1	1	
Cafe au lait spot	6	4	2
Generalized lentigo	4	4	
Freckles	6	3	3
Seborrheic keratosis	1	1	
Congenital melanosis of eyelids	1	1	
Benign acanthosis nigricans	1	1	
Postinflammatory pigmentation	8	2	6
Total	84	64	20

In the table are seen the results of treatment in 84 cases of melanin hyperpigmentation, consisting of the 25 patients treated directly by us and 59 by other dermatologists, using a 20% monobenzyl ether of hydroquinone ointment locally twice daily until the desired effect was obtained. Lower concentrations were used in some instances. In addition to the 2 patients of ours in whom

a sensitization reaction developed, 9 of the 59 treated by other dermatologists showed a similar response. Five of the nine patients who contracted a dermatitis showed good depigmentation. One patient, who was later given a 5% monobenzyl ether of hydroquinone, had no further difficulty.

CASE 1—A man, aged 28, had melasma of the forehead and neck of approximately five years' duration, was treated for five months with definite decrease in pigmentation, and showed no sensitization reaction.

CASE 2—A woman, aged 33, had melasma of the face for 14 years, was treated for eight months with some decrease in pigmentation, and showed no sensitization reaction (fig 2).

CASE 3—A woman, aged 34, had melasma of the face for one and one half years and was treated for seven months with definite improvement, no dermatitis developed.

CASE 4—A woman, aged 35, had melasma of the face for about 10 years' duration, was treated for two months with some lightening of skin color, and showed no sensitization reaction.

CASE 5—A woman, aged 59, had melasma of the arms and was treated for three months with questionable improvement, no dermatitis was noted.

CASE 6—A woman, aged 31, had melasma (pregnancy) of the cheeks, upper eyelids, and nose, of six years' duration, was treated for four months, and showed no results and no dermatitis.



Fig 2 (case 2)—Patient with melasma before and after eight months of therapy.

CASE 7—A woman, aged 27, had melasma of the face of six years' duration. After one month's therapy dermatitis developed and treatment was discontinued. There was no improvement and no sensitization.

CASE 8—A woman, aged 49, had melasma of the face. After one month of therapy, patient showed improvement and no sensitization reaction.

CASE 9—A woman, aged 40, had melasma of the forehead and cheeks of three years' duration. After three months of therapy there was definite improvement and no dermatitis.

CASE 10—A woman, aged 48, had melasma of the face and arms of several years' duration. The patient was treated intermittently for four months with improvement. No dermatitis developed.

CASE 11—A woman, aged 39, had melasma of the face of five years' duration, was treated for two months with good results, and showed no sensitization reaction.

CASE 12—A woman, aged 27, had melasma (Addison) of the face and hands, palmar creases, and mucous membranes of four years' duration, she was treated for six months, with excellent results. No dermatitis developed.

CASE 13—A Negro woman, aged 51, had hyperpigmentation on dorsal hand surfaces for several months. The diagnosis was berlock dermatitis or heavy metal melanosis. She was treated for two months with questionable results, there was no sensitization reaction.

CASE 14—A woman, aged 31, had herlock dermatitis of the face of one year's duration and was treated intermittently for one year with excellent results. No dermatitis was noted.

CASE 15—A woman, aged 25, had had since birth melano derma of the back compatible with the diagnosis of a blue nevus. There was marked depigmentation after one month of therapy. No dermatitis developed.

CASE 16—A man, aged 27, had had since birth a flat pigmented nevus approximately 6 cm in diameter on the left side

the patient stated that irritation had developed on applying the drug. She discontinued treatment, and the excellent cosmetic results remained (fig 4).

CASE 25—A woman, aged 28, had numerous freckles on the face and neck since childhood, was treated with 5% monobenzyl ether of hydroquinone for two months with marked improvement, and showed no sensitization reaction.

FEASIBILITY OF COMPLETE BODY DEPIGMENTATION

Since monobenzyl ether of hydroquinone is an effective depigmenting agent when prepared and used properly, a question commonly asked is whether or not it is possible to remove all the pigment from the skin of a darkly pigmented person. In general the preparations reported herein cannot be used for this purpose unless a concentrated effort is made over a long period of time. Even so, results would be questionable, however, in certain special cases complete depigmentation may be practicable, as in patients with vitiligo or those predisposed to this disorder. Evidence from various sources indicates that monobenzyl ether of hydroquinone is much more effective in patients with vitiligo than in persons with normal skin. Two Negro patients who had disfiguring vitiligo of the face and body used these preparations on a single arm for long periods of time and became completely depigmented, except for the hair and eyes, which retained their normal coloring.⁶ One of these patients became pregnant after she was depigmented but still receiving treatment. She gave birth to a normally colored baby. Hence, locally applied monobenzyl ether of hydroquinone does not affect the skin color of the fetus in utero. In a third Negro total vitiligo developed and later began to repigment with small unsightly spots.⁷ She prevented

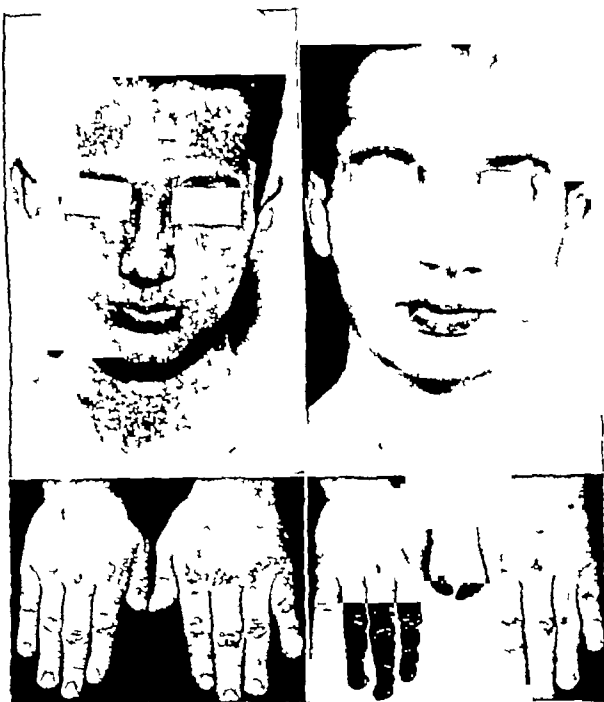


Fig 3 (case 23)—Patient with generalized freckles and lentigo before and after 20 months of therapy for the face and neck and 5 months for the hands.

of the face. After four months of therapy there was a questionable decrease in pigmentation and no reaction to the drug.

CASE 17—A woman, aged 24, had a pigmented nevus on arm since childhood and was treated for four months. No change and no sensitization were noted.

CASE 18—A woman, aged 65, had lentigo senilis on dorsal surfaces of the hands and arms, was treated for two months with definite improvement, and showed no sensitization reaction.

CASE 19—A woman, aged 21, had a *café au lait* spot on the arm since childhood and was treated for three months, with decrease in pigmentation of the lesion. No dermatitis developed.

CASE 20—A girl, aged 16, had a *café au lait* spot on the arm present since birth, after four months' treatment, there was some lightening of the hyperpigmented area and no sensitization reaction.

CASE 21—A woman, aged 54, had a *café au lait* spot on the cheek most of her life, she showed marked improvement after four months' treatment. No dermatitis developed.

CASE 22—A man, aged 25, had generalized lentigines and was treated intermittently for one year with slight improvement. No sensitization was noted.

CASE 23—A man, aged 28, had marked generalized lentigines and freckles since early childhood with severe secondary neurosis because of the disfigurement. His face, neck, and hands were treated for two years with 33% monobenzyl ether of hydroquinone and then for one year with the 20% ointment. Almost complete disappearance of lesions occurred. No dermatitis developed (fig 3).

CASE 24—A girl, aged 19, had freckles of exposed areas since childhood. Her face and hands were treated for two months with striking improvement. At the end of this period,

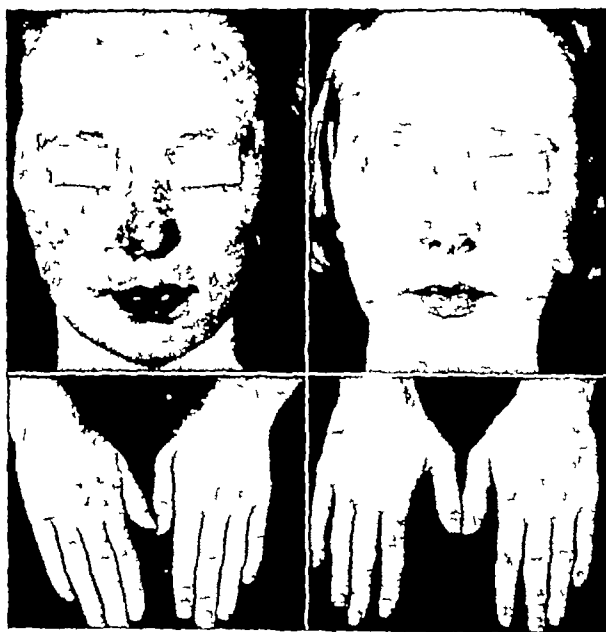


Fig 4—Patient with freckles before and after two months of therapy.

appearance of these spots by applying ointments containing monobenzyl ether of hydroquinone. In a fourth Negro who had slight vitiligo extensive vitiligo developed

6 Stolar R. Personal communication to the authors.

7 Schwartz, L. Personal communication to the authors.

following local depigmentation of the legs from a rubber garter, which probably contained monobenzyl ether of hydroquinone.⁸ None of the patients showed depigmentation of the hair or eyes. This may be an indication that monobenzyl ether of hydroquinone does not act directly on the melanocytes but is first converted in the skin to another substance. No knowledge is available on the effect of this medication orally on pigmentation in human beings. In white patients with malignant melanomas treated by Kelly, Bierman, and Shimkin⁹ with oral monobenzyl ether of hydroquinone obvious changes in pigmentation did not develop.

In our experiments⁸ with five normal Negro subjects, 20% monobenzyl ether of hydroquinone was applied daily to one arm for two months without change in pigmentation, however, one subject readily underwent depigmentation in one month on covering the site of application of the ointment with gauze and adhesive tape. Repigmentation was complete two months later. Similar results were obtained when the 5% monobenzyl ether of hydroquinone was used in the same subject.



Fig 5—Results of continuous patch tests on back of Negro male volunteer for one month. Ten per cent monobenzyl ether of hydroquinone was used on the left and 30% on the right.

THERAPEUTIC PREPARATIONS AND METHOD OF TREATMENT

The purity and concentration of monobenzyl ether of hydroquinone and the vehicle and mode of application are important factors in obtaining a good clinical result. It is possible that early work with monobenzyl ether of hydroquinone was associated with sensitization reactions because of the presence of about 10% contaminants. This crude preparation contained dibenzyl ether of hydroquinone and unidentified oxidation products. In addition, the physical state of the material was such that its incorporation in an ointment resulted in a gritty mixture that abraded the skin. The ointment (Benoquin) used in our studies consisted of purified and finely milled monobenzyl ether of hydroquinone.

Patch tests on the skin of normally colored persons¹⁰ showed that the greater the concentration of the drug in the ointment, the more rapid the depigmentation. For example, as shown in figure 5, a 30% ointment was more effective than a 10% ointment, however, almost any concentration from less than 1% to 50% was effective, depending on the frequency of application and unknown factors peculiar to the person. Occupational and acci-

dental depigmentation from rubber gloves, other rubber items, and adhesive tape was obtained with only small quantities of monobenzyl ether of hydroquinone. Some dermatologists prefer a 5% ointment. Most of the patients followed by us were given a 20% ointment, but in some cases the concentration of the drug was 5%. If a given concentration produces a dermatitis, the concentration should be decreased. If necessary, the material should be applied less frequently rather than discontinuing treatment. Stolar⁶ and Horne¹¹ obtained good therapeutic results in patients sensitive to the drug by adhering to these procedures.

Many substances have been suggested as vehicles in which to incorporate monobenzyl ether of hydroquinone for local application, including organic solvents (or mixtures) of acetone, alcohol, and olive oil, ointment bases of petrolatum or water washable substances, pomade sticks, and plaster. Oral use of the drug has been considered. All locally applied preparations, except sticks, which were not tried, can bring about depigmentation. The ointment bases, particularly those that are water washable, are the easiest to use. Alcohol or acetone preparations are too drying for many patients, and olive oil is too greasy. Good results were obtained with 10% monobenzyl ether of hydroquinone plaster in two out of four patients with *café au lait* spots and one Negro serving as a control after three to eight weeks' therapy, however, in two of the patients a dermatitis developed after three weeks' application of the plaster.

As mentioned earlier, although oral preparations were not tried, the drug is not toxic, and depigmentation by this method must be studied. Grupper¹² stated that parahydroxypropiophenone, used orally or locally, could bring about depigmentation but that the combination of both forms of therapy was most effective. Monobenzyl ether of hydroquinone should be investigated for possible similar results.

Ointment preparations are applied to the skin twice daily until depigmentation appears, usually in one to three months. After obtaining the desired depigmentation, applications are reduced to once daily and later once weekly. At times transient burning of 5 to 20 minutes' duration occurs after the ointment is applied. This reaction does not indicate cessation of therapy because symptoms usually disappear after three weeks' use. If a dermatitis develops after application of the ointment, the preparation should be diluted to 1 to 5% and, if necessary, applied less frequently than twice a day. The treatment of a patient in whom sensitivity to the drug develops cannot be clearly outlined but must be managed individually by the physician.

RATE AND DURATION OF DEPIGMENTATION

The rate of depigmentation of a treated pigmented area varies greatly, ranging from three weeks to six months. As stated previously, the concentration of the active agent and the mode of application, as well as factors peculiar to the person, are important. Adhesive tape or other types of occlusive covering over the ointment-treated areas result in more rapid and complete depigmentation, however, it is not practical to cover areas such as the face for long periods of time, and these are the regions for which the patient usually seeks treatment.

⁸ Perry T. Personal communication to the authors.

⁹ Kelly K, H, Bierman H R, and Shimkin M B. Negative Effects of Oral Monobenzyl Ether of Hydroquinone in Malignant Melanoma. In *Man Proc. Soc. Exper. Biol. & Med.* 70: 589, 1952.

¹⁰ Denton C R, Lerner A B, and Fitzpatrick T B. Inhibition of Melanin Formation by Chemical Agents. *J. Invest. Dermat.* 18: 119, 1952.

The more concentrated the preparation, the more rapid the rate of depigmentation (fig 5)

When ointment preparations of monobenzyl ether of hydroquinone are used to treat freckles, lentigo, and melasma, no change occurs in the normally pigmented skin of the fingers used to apply the medication or in the areas contiguous to those of hyperpigmentation. An albino color is not obtained. An exception was a Negro woman with melasma (pregnancy) in whom localized leukoderma of the face developed after the application of a 5% ointment.¹³ Pigmentation returned when therapy was discontinued. It is an interesting phenomenon that, whereas in white patients normal skin pigmentation is not affected, in Negroes not only the abnormally pigmented areas disappear but also the pigment of normal skin. Hence, there is a difference in the total net effect of local application of monobenzyl ether of hydroquinone on Negro and on white skin. Some unknown balance between melanin formation and melanin depletion may operate to explain this phenomenon. In short-term (30 day) tests¹⁰ on Negro patients, no correlation was found between the intensity of their pigmentation and the rate of depigmentation.

The rate of repigmentation after complete cessation of therapy varies from two months to periods of unknown duration. Some patients with occupational leukoderma related to monobenzyl ether of hydroquinone did not regain normal pigmentation. In all our patch test studies with Negroes pigmentation was complete within three months. In patients with freckles and melasma, exposure to sunlight increased the rate of repigmentation. Such patients must be instructed to avoid overexposure to sunlight. Ultraviolet light protective agents are sometimes useful.

MECHANISM OF ACTION

Experimental work has shown that monobenzyl ether of hydroquinone has no action on melanocytes or the tyrosine-tyrosinase reaction, but it may be split to form hydroquinone, which in turn inhibits melanin formation.¹⁰ Fassett¹⁴ believes that this hypothesis is incorrect and that hydroquinone does not affect pigmentation. Whereas persons who handle hydroquinone do not become depigmented, those who work with monobenzyl ether of hydroquinone occasionally do, however, it is known that parenteral administration of hydroquinone produces depigmentation in experimental animals. Hydroquinone is a good inhibitor of the tyrosine-tyrosinase reaction.¹⁰ Inhibition of a metabolic process depends on the presence of an active agent at a specific site. It is possible that hydroquinone does not reach the melanocyte on application to the skin and that monobenzyl ether of hydroquinone is converted at the proper site in the skin to hydroquinone, which in turn can inhibit melanin formation.

OTHER DRUGS

Para-hydroxypropiophenone is the only substance similar to monobenzyl ether of hydroquinone that has been used to effect depigmentation. Both chemicals are parahydroxyphenyl derivatives. Para-hydroxypropiophenone has been used locally and orally in the treatment of melasma (Riehl).¹⁵ Best results were obtained with 1 to 2 gm of the drug orally daily and a 12% ointment

locally. This drug has not been used extensively by us. No depigmentation occurred in Negro patients with patch tests performed similarly to those with monobenzyl ether of hydroquinone that produced depigmentation.¹⁰

Ointments containing ammoniated mercury have been, and are continuing to be, used for removing freckles. The results have been inconsistent. Even when an effect is attained, it is weak and not clear-cut.

At the present time much is known about melanin formation,¹ including the type of cell (melanocyte), the substrate (the amino acid tyrosine), the enzyme (tyrosinase—a copper protein complex), and the chemical steps involved in this process. Because of this knowledge, new methods may be found to inhibit melanin formation, however, at this date, monobenzyl ether of hydroquinone remains the most effective and useful agent.

SENSITIZATION AND TOXICITY

The only toxic reaction to monobenzyl ether of hydroquinone has been sensitization with subsequent dermatitis. No systemic toxicity has been observed. As a patch test, the 20% ointment containing purified monobenzyl ether of hydroquinone was applied to the forearm of 260 normal persons for 48 hours.¹⁰ Three persons (1.2%) showed a mild reaction consisting of localized erythema and edema. Similar testing, using an ointment of 20% crude monobenzyl ether of hydroquinone on 90 persons, resulted in mild reactions in 3 cases (3.3%). Retesting the purified preparation on 135 persons three weeks after the initial experiment revealed no new instances of reactions, however, on retesting the crude preparation on 76 persons, it was found that 3 reacted (4.0%). Thus it appears that the purified monobenzyl ether of hydroquinone is less sensitizing than the crude chemical, however, a greater series of cases would have to be studied to establish this point.

Of 31 persons, including patients and test subjects who applied the ointment for two months under our direct supervision, 2 showed sensitivity to the drug. In one of these (case 2), an excellent clinical result was obtained before sensitivity appeared. Of 59 patients treated by other dermatologists, 9 showed sensitization reactions. Five of the nine patients showed good clinical results, and one maintained a good effect without the development of dermatitis when 5% monobenzyl ether of hydroquinone was used instead of 20%. As mentioned earlier, the plaster preparations produced a localized dermatitis in two out of five cases although the clinical responses were good in that depigmentation occurred. One of our patients (case 23) used various preparations of monobenzyl ether of hydroquinone over the entire face, neck, and hands daily for almost three years. During the past year, he used only the 20% formula. Clinical and laboratory findings were completely normal.

It is interesting that approximately 13% of patients treated with 20% purified monobenzyl ether of hydroquinone showed some type of sensitization, whereas only 1.2% of persons patch-tested with the same ointment reacted on initial testing. No reactions were seen on retesting three weeks later. It can be concluded that patch testing alone does not simulate therapeutic use of these preparations in regard to the development of sensitization. The ointments are diluted from 20 to 5% if *

application results in transient burning or erythema Stolar⁶ and Horne¹¹ obtained good clinical results in patients sensitive to the drug by diluting the preparations and applying them less frequently

Kelly, Bierman, and Shimkin⁹ administered monobenzyl ether of hydroquinone to eight patients with malignant melanomas Total doses of 2.9 to 1,490 gm administered in daily amounts of 0.5 to 25 gm orally for 21 to 214 days produced no toxic effects other than transient nausea and vomiting when the daily dose exceeded 10 gm The growth of the melanomas was not affected Seven of the eight patients died after an expected course of their malignancy Necropsy of these seven failed to reveal histological evidence of toxic effects or other changes attributable to ingestion of the drug No toxic changes were observed in mice receiving 600 mg per kilogram of body weight of monobenzyl ether of hydroquinone intraperitoneally daily for three weeks¹⁰ or in guinea pigs ingesting 160 mg per kilogram daily for two months¹⁰

SUMMARY

Of 84 patients with increased melanin pigmentation treated with 20% monobenzyl ether of hydroquinone (Benoquin), 64 showed a good clinical response after

two to six months' treatment Eleven of the 84 patients (13%) became sensitive to the ointment and reported a local dermatitis, however, 7 of these 11 patients had an excellent therapeutic effect before the sensitivity was acquired

Results obtained on patients treated directly by us showed monobenzyl ether of hydroquinone to be highly effective in generalized lentigines, severe freckling, hyperpigmentation due to photosensitization following use of certain perfumes (berlock dermatitis), and melasma (Addison) Treatment was moderately successful in melasma (pregnancy) but of little or no value in *café au lait* spots or pigmented nevi Other physicians reported good results in melasma (pregnancy) and postinflammatory hyperpigmentation but only fair improvement of *café au lait* spots Mild or moderate freckling should not be treated because these lesions usually fade spontaneously during the winter months and the incidence of sensitization to the drug is relatively high

The feasibility of complete body depigmentation was discussed Factors relative to therapy such as concentration of the drug, type of vehicle, mode of application, duration of treatment, and management of patients with sensitivity were considered

MECONIUM PERITONITIS

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Meconium peritonitis is an aseptic chemical peritonitis that follows perforation of the intestines in fetal life Although this condition is infrequent, it should be emphasized that the correct diagnosis can be made on the basis of characteristic roentgenographic findings This is of considerable clinical importance in the surgical differential diagnosis of acute abdominal conditions in infancy A case of meconium peritonitis with the unusual presenting complaint of scrotal swelling is described as well as a typical case

Simpson¹ is credited with the first comprehensive presentation of meconium peritonitis in 1838, in which he reviewed 15 cases and added 9 of his own By 1949 over 100 cases had been reported in the literature²

Occurrence of this disease requires the presence of fetal peristalsis and meconium, both of which make their appearance during the second trimester of prenatal life Boikan³ cites Rudnew's case of a stillborn fetus of six months' development that had meconium peritonitis with calcification When, as in our case 1, a definite obstruction of the intestines can be demonstrated, the pattern of events—hyperperistalsis, thinning of the wall, and

perforation—is readily understood In other instances, weakness of the wall or abnormal meconium is predicted as the prime factor

Meconium is a sterile mixture of cast off epithelial cells, bile, fats, stearic acid, sebaceous material from swallowed amniotic fluid, mucin, and salts When the meconium enters the peritoneal cavity, it creates a vigorous irritation and gives rise to a tremendous adhesive process Calcification occurs at varying intervals from the time of perforation and is usually demonstrated overlying the epithelial cells in the exudate If the intestinal perforation occurs at or near the birth of the baby, surgical exploration will reveal bile, meconium, and probably free air in the peritoneal cavity If the original perforation occurred earlier, extensive adhesions and calcification will be present (fig 1A)

In 50% of the cases of meconium peritonitis, definite obstructive lesions to the wall of the intestine can be demonstrated, such as volvulus, intussusception, congenital bands, angulation and kinks, atresia, and stenosis, the latter two lesions are seen most commonly When a low large bowel obstruction results in perforation, the tear may be found in more than one place and anywhere from the sigmoid to the cecum³ The commonest location of perforation in the small bowel is approximately 10 cm proximal to the site of obstruction Small intestinal stenoses and atresias are commonest in the duodenum and ileum When found in the duodenum, they are usually single, and when found in the ileum, they are not

Dr H S Weens assisted in the study of these patients.

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1 Simpson J Y Meconium Peritonitis in the Fetus in Utero Edin burgh M J 15 390-414 1838

2 Low J R, Cooper G Jr and Cosby L Jr Meconium Peritonitis Surgery 26 223-228 1949

3 Boikan W S Meconium Peritonitis from Spontaneous Perforation of the Ileum in Utero Arch. Path. 9 1164-1183 (June) 1930

uncommonly multiple. The bowel distal to an atresia will usually be collapsed, owing to the fact that meconium has never passed through it.⁴

Conditions other than those obstructing the wall of the intestine can produce perforation. Meconium ileus, congenital diverticula, ulcers and hyperplastic lymph and glandular tissue have been incriminated as factors producing weakening of the wall and rupture in various cases. The role of trauma has not been established.⁵

The existence of the fetus is endangered even before birth by polyhydramnios and by dystocia in labor due to distention of the abdomen and to edema of the abdominal wall of the fetus. The newborn infant is usually acutely ill and cyanotic, vomits frequently, and has absent or scanty stools. At times blood may be present in the stools and vomitus.

X-ray examination is helpful. Distention of the small bowel points to the presence of intestinal obstruction. If the perforation is recent, free air may be demonstrated on upright films of the abdomen. If the perforation has taken place at some previous date, a characteristic streaky and plaque type of calcification may be seen distributed throughout the entire peritoneal cavity, frequently extending over the dome of the liver.⁶

Recent articles have described intraluminal calcifications of a stippled appearance associated with intestinal atresia, in which instances the preoperative roentgenogram misled the radiologist into an interpretation of meconium peritonitis. At operation the peritoneum was clear and the densities were all part of the intestinal contents. This condition may be differentiated on the roentgenogram by the central location of the densities in contrast to the involvement of the parietal peritoneum of the abdominal wall and liver areas in meconium peritonitis.

Surgical treatment is the only recourse in the acutely ill infant. Not only must the underlying lesion causing the perforation be relieved and the perforation closed but the operator is faced with resecting the tremendous number of adhesions that are present in order to expose the lesion. The postoperative course is complicated by these adhesions, which promptly reform and which present the hazard of a recurrent obstruction. Despite the poor outlook, in at least three cases recorded in the literature the patients have recovered following surgery.⁶ Following is a description of two instances of meconium peritonitis that have been encountered during the past few years.

CASE 1—A white baby girl was born on April 24, 1952, following a normal delivery by Dr. O. R. Thompson. The only sibling is normal. The patient's abdomen was somewhat distended. No other abnormality was noted at birth.

During the first few hours of life, the abdomen increased in size and the child became restless. The surgical consultant saw this child at 18 hours of age. Marked distention and dyspnea were noted and seemed to indicate a congenital intra-abdominal gastrointestinal anomaly. A scout film of the abdomen was ordered.

The roentgenologist reported considerable abdominal distention from a distended small bowel and peritoneal fluid. Calcifications were noted throughout the entire peritoneal cavity, extending over the dome of the liver. The barium enema examination revealed the colon to be patent throughout but of small

caliber. Barium given orally failed to enter the duodenum. The close relationship of the gas-filled small intestinal loops in the anterior superior portions of the abdomen was felt to be due to the adhesive and calcific peritonitis. Meconium peritonitis with small intestinal atresia was the preoperative roentgenographic diagnosis (fig. 1).

Laparotomy was done 20 hours after birth through a right rectus incision. The peritoneal cavity was completely filled with a dark green, somewhat mucoid looking fluid, which was aspirated. The peritoneum and the abdominal viscera were thickened by a dark bluish black membrane, apparently old meconium, which made the bowel appear to be gangrenous.

When this membrane was removed, the underlying intestines appeared viable. The stomach and duodenum were markedly dilated and thickened (6 mm) from hypertrophy of the wall secondary to an obstructive thickening in the area of the ligament of Treitz, the exact nature of which could not be determined.

The main finding was an atresia, 1 in (2.5 cm) in length, of the distal ileum just proximal to the ileocecal valve. Just above the atresia the ileum was ruptured, and normal appearing meconium was exuding from the lumen. A small rubber catheter was inserted into the small intestine, and irrigation with isotonic sodium chloride was done to remove as much meconium as possible.

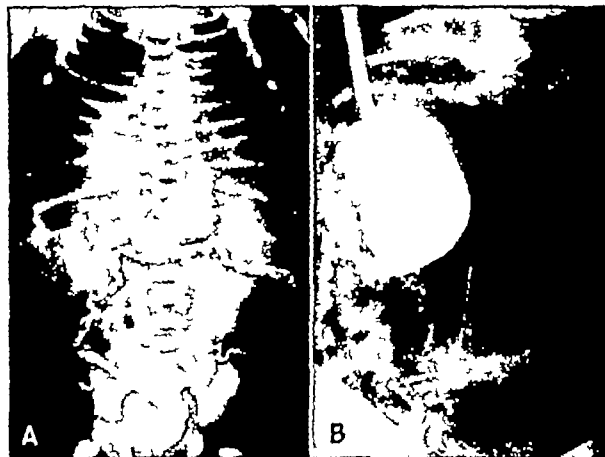


Fig. 1 (case 1)—A meconium peritonitis following ileal atresia. The stomach and underdeveloped colon are outlined with barium. Note the widespread calcifications in the abdomen. B lateral view. Note the collection of gas in the small bowel loops which form a cluster from the matted adhesions. (The white streak in the center is a film scratch.)

An ileocecostomy to bypass the atresia was performed. When the large bowel was opened, residual barium from the preoperative colon study was found. Meconium was absent. An interesting finding at operation was the lighter color of the colon, which helped to distinguish the large bowel. The difference was due to the absence of meconium in the colon and the presence of barium remaining from the enema examination. The obstruction around the ligament of Treitz was bypassed by a gastroenterostomy. The abdomen was anatomically closed.

The patient stood the operation well and the next day appeared to be progressing. Blood, penicillin, and fluids parenterally were administered. Three days following surgery, the patient had a bowel movement and the abdomen was fairly soft. The Wangensteen suction was discontinued, and water was given by mouth.

4 Ladd W. E. and Gross R. E. *Abdominal Surgery of Infancy and Childhood*. Philadelphia: W. B. Saunders Company, 1941, pp. 25-52.

5 Neuhauser E. B. D. *The Roentgen Diagnosis of Fetal Meconium Peritonitis*. *Am. J. Roentgenol.* 51: 421-425, 1944.

6 Conrad H. A. and Robbins F. R. *Congenital Atresia of the Jejunum with Meconium Peritonitis*. *J. Internat. Coll. Surgeons*, 15: 320-327, 1951. Low² Neuhauser.⁵

Five days following surgery, she was given a formula. Two days after a formula was given, the patient began to vomit and her abdomen became distended. The temperature rose, and diarrhea developed. Nine days postoperatively, a fistula developed, and the wound broke down. She continued a downhill course and died on the 13th postoperative day. Permission for an autopsy was not obtained.

This is a fairly typical case of meconium peritonitis secondary to an ileal atresia, which apparently perforated in prenatal life and was still patent at the time of surgery on the first day of life. The x-ray findings in this case were characteristic, and the diagnosis was made preoperatively.

CASE 2—A two month-old Negro boy was admitted to Grady Memorial Hospital on Dec. 12, 1947, with a chief complaint of enlargement of the scrotum. This child had a normal delivery and weighed 7 lb., 8 oz. (3,402 gm.) at birth. Tests of the mother's blood for syphilis were negative.

At the time of delivery the scrotum was noted to be markedly swollen. In the two months since birth the scrotum had diminished to one half its previous size but was still three to four times normal size. The child was asymptomatic in every other respect and was gaining weight normally. There were no other physical findings except for the enlarged scrotum. Results of laboratory studies, which included determination of the blood calcium, serological studies, and duodenal trypsin studies, were noncontributory. The suggested clinical diagnoses included bilateral epididymitis and orchitis, syphilitic orchitis, teratoma, and bilateral hydrocele.

Intravenous urography revealed numerous mottled and stippled areas of calcification in both sides of the scrotum in the deep tissues surrounding the testicle and epididymis (fig. 2). One of the radiologists (Dr. E. T. Walker) noted numerous areas of calcification within the confines of the peritoneal cavity extending above the dome of the liver (fig. 3). Roentgenographic studies of the entire body revealed no other areas of calcification. The conclusion was that this child had had a perforation of the intestine during fetal life resulting in spillage of meconium into the peritoneal cavity, with spontaneous sealing of the opening. The clinical and x-ray findings were the residual changes of meconium peritonitis, which occurred during fetal



Fig. 2 (case 2)—Bilateral peritesticular calcification secondary to meconium peritonitis in a two-month-old infant. Note the scrotal enlargement.

life when the main peritoneal cavity and the processus vaginalis to the scrotum freely communicate. Normally this communication ceases within a few weeks to a few months after birth.⁷

A biopsy of the testicular mass was performed on Jan. 9 at 2½ months of age and showed 'loose fetal connective tissue with slight acute and chronic inflammatory cell infiltration and some areas of calcification'. Follow-up clinical examination in the outpatient department up to the present time has revealed no further trouble except for one brief episode of scrotal swelling, which quickly subsided. A repeat roentgenogram taken in August, 1952, at 5 years of age showed considerable diminution in the amount of calcification.



Fig. 3 (case 2)—The arrows indicate calcifications of peritoneum in liver area.

This case is unique in that the child had no intestinal symptoms and was hospitalized because of scrotal swelling. The basis of the scrotal abnormality was described by Simpson¹ in case 4 of his original presentation: "Both the tunicae vaginales of the testes still communicated with the cavity of the peritoneum and the serous surface of the left one was partially coated by a layer of coagulable lymph." No known disease entity other than meconium peritonitis can account for these calcific foci in the scrotal, abdominal, and liver areas of our patient.

SUMMARY

The disease entity, meconium peritonitis, is reviewed, and a typical case is described. A case of scrotal enlargement with calcification in the peritesticular tissues and with calcifications in the peritoneal cavity, all believed due to meconium peritonitis in prenatal life, is also described. This second case is unusual because the child is completely asymptomatic as far as the intestinal tract is concerned. This is the first case on record of meconium peritonitis causing calcification in the scrotum.

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⁷ Arey, L. B.: *Developmental Anatomy*, ed. 3. Philadelphia, W. B. Saunders Company, 1934, p. 271.

CLINICAL PROBLEMS RELATING TO THE MANAGEMENT OF INFECTIONS WITH ANTIBIOTICS

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Any physician who was responsible for patients with bacterial infections prior to the introduction of the sulfonamides and the antibiotics can readily appreciate the advantages that these therapeutic agents have brought about in the management of infectious diseases. One could dwell at length on the change in the clinical pattern that has resulted from modern antibiotic therapy in each of several infectious diseases. Consider the natural course of untreated hemolytic streptococcal septicemia, with its previous mortality of over 75% as compared to that of less than 10% existing today because of these advances in treatment. Gonorrhea can be successfully treated overnight, and no longer are hospital beds filled with patients having debilitating and chronic complications resulting from this venereal disease. Some of the most remarkable therapeutic triumphs involve patients with such diseases as subacute bacterial endocarditis or pneumococcal meningitis, in which recovery of an untreated patient is extremely rare.

Although revolutionary advancements have occurred in the management of infectious diseases, the clinician is often perplexed by those infectious processes that fail to respond favorably to the antibiotics, paradoxically, the antibiotics have brought forth new clinical problems. At this point it is well to review some of the unsolved clinical problems in the management of infectious diseases and to consider some of the disadvantages induced by the widespread use of the antibiotics.

SOME PROBLEMS CREATED BY ANTIBIOTIC THERAPY

One or two basic therapeutic principles should govern the clinician in his use of the antibiotics. Either as a result of precise laboratory data or on the basis of adequate clinical experience, he can decide that a given patient is suffering from a specific infectious disease. Oftener than not information is available to determine whether an antibiotic is indicated in such a disease, if so, the antibiotic should be used that has been shown to be the most effective. Unfortunately, as simple and as sound as these principles are, many clinical problems are created by the indiscriminate use of the antibiotics in such situations. A current pernicious therapeutic philosophy is based on the following conclusions: 1 The antibiotics are highly effective for many common bacterial infections. 2 These drugs are readily available, inexpensive, easy to administer, and relatively nontoxic. 3 In cases in which the patient is febrile with the cause in doubt, before investigating the basic causes of the illness, therapy with an antibiotic should be attempted. In some instances a seriously ill patient is benefited by such a procedure, but in too many cases such an approach not only curtails the arrival at a correct diagnosis but may actually jeopardize the eventual recovery of a patient. A widespread epidemic of respiratory diseases, including influenza, occurred during the winter of 1952-1953. In this community many persons, with and without the

advice of physicians, took one or more antibiotics. In some instances suppurative complications may have been prevented by such medication, which was desirable in selected groups of patients. But in the majority of treated cases the clinical course was unaltered, a false sense of security dominated the patients — and physicians, the antibiotics induced troublesome, and even disabling, side-effects, occasionally, a more serious febrile disease than a mild respiratory disease was masked by such therapy.

It should be emphasized that most of the viral infections, many fungus diseases, and some bacterial infections are not benefited by antibiotic therapy. Whenever possible, and particularly in the seriously ill patient, every effort should be made to define the etiological agent responsible for an infection. The indiscriminate use of antibiotics in patients not only may destroy readily available bacteriological evidence as to the nature of the disease but may leave the attending physician with a patient who remains febrile and ill in spite of treatment with an antibiotic. This has occurred many times in instances of subacute bacterial endocarditis. In this disease, the micro-organism should be isolated and in vitro sensitivity test carried out, so that the proper antibiotic or combination of antibiotics can be selected and intensive treatment utilized for several weeks. Every staff in a large general hospital has encountered situations in which febrile patients with lymphoblastomas, blood dyscrasias, infectious mononucleosis, or malignant lesions have been uselessly treated with a variety of antibiotics before it was decided to seek out the fundamental causes for the illness.

One of the remarkable features of the antibiotics is that these agents exert their antibacterial effects by altering the metabolic activity of the bacterial cells but have little or no associated deleterious action on the cells of the host. Nevertheless, these drugs do cause side-effects, which may be more serious than the disease for which they are being prescribed. At least 1 to 2% of patients to whom penicillin is administered manifest hypersensitivity to the antibiotic. These reactions vary from a mild febrile response with or without a skin eruption to a violent systemic illness that simulates serum sickness. Rarely are these drug reactions irreversible and so progressively severe that death ensues. I have witnessed two, and possibly three, cases of fatal periarthritis nodosa where penicillin appeared to be the cause. Streptomycin also induces manifestations of hypersensitivity such as fever, skin rashes, and purpura. In addition, damage to the eighth nerve may occur owing to streptomycin, which provokes vestibular dysfunction, and dihydrostreptomycin may cause varying degrees of loss of hearing. These deleterious effects on the eighth nerve can be reduced by

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combining equal parts of streptomycin and dihydrostreptomycin. In my experience, the so-called broad spectrum antibiotics, aureomycin and oxytetracycline (Terramycin), rarely cause hypersensitivity reactions in the form of fever and skin eruptions, but these agents may initiate disturbing side-effects referable to the gastrointestinal tract. Common manifestations are nausea, vomiting, abdominal distress, and, at times, diarrhea. The bacterial flora of the intestinal tract can be markedly altered by the ingestion of these agents, with the suppression, and even the elimination, of many species of bacteria. On the other hand, whereas the growth of some bacteria is suppressed, there are other species of microorganisms that reproduce more rapidly under these circumstances. The appearance of large numbers of fungi, like *Candida*, may result in inflammatory reactions involving the intestinal tract from the oral mucosa to the rectum. In a few instances, especially where the patient is poorly nourished, there may be a systemic invasion of the tissues by *Candida* fungus. At times profuse diarrhea may ensue, and some patients have exhibited the clinical features and lesions of acute ulcerative colitis. A severe form of diarrhea with dehydration and shock may be associated with the rapid multiplication of resistant staphylococci that produce an enterotoxin.¹ Examination of the stools will reveal an almost pure culture of *Micrococcus pyogenes*. Less violent effects on the gastrointestinal tract have been attributed to chloramphenicol, but this antibiotic may have a severe depressing effect on the bone marrow, resulting in an irreversible and fatal aplastic anemia. In regard to the gastrointestinal disturbances induced by the antibiotics, any of the antibiotics when administered orally may be potential offenders. Bacitracin, polymyxin, and neomycin are all nephrotoxic agents and should be used with extreme caution for systemic purposes. In addition, neomycin is ototoxic. Neomycin has been used extensively, without undesirable reactions, in the University of Minnesota clinics for the preoperative preparation of patients who undergo surgery on the gastrointestinal tract. Furthermore, neomycin has been employed in aerosol form by Waisbren and Hall² for bronchiectasis, chronic bronchitis, and lung abscess. No toxic reactions have followed the use of 0.5 gm in 3 ml of sodium chloride solution administered with a no. 40 DeVilbiss nebulizer twice daily. Aside from gastrointestinal disturbances, no serious reactions have thus far been attributed to erythromycin and carbomycin.

Reference has already been made to the emergence and proliferation of strains of bacteria highly resistant to the antibiotics as a result of the selective action of these agents. Some aspects of this problem will be developed in more detail shortly. Of major concern is the dissemination of strains of staphylococci that not only are resistant to penicillin, streptomycin, aureomycin, oxytetracycline, and chloramphenicol but are also beginning to manifest resistance to some of the newer antibiotics.

Another problem involves the resistance of many species of gram-negative bacteria to penicillin. The clinicians may properly start treating an infection due to a susceptible strain of gram-positive organisms and then, because of the overgrowth of a resistant strain or strains of gram-negative bacteria, end treating a new bacterial infection in the patient as a result of penicillin therapy. A similar sequence of events has occurred in cases in which streptomycin was used and an infection due to gram-positive organisms appeared later.³

CHOICE AND COMBINATIONS OF ANTIBIOTICS

Reflecting the competitive nature and resourcefulness of the pharmaceutical industry, hundreds of antibiotics have been investigated as potential therapeutic agents. Fortunately, relatively few of them have been placed at the disposal of the physician. Those organizations that have uncovered a new and acceptable antibiotic have exploited their good fortune by pinpointing the efforts of the whole sales force on their new agent, always fearful in the meantime that another more desirable antibiotic of their competitors will be marketed. Those companies that have not discovered their own antibiotic have often launched an altered form of an established antibiotic, such as penicillin, or a combination of antibiotics, and some have even found it profitable to place a revised form of a sulfonamide before the medical profession. It is little wonder that the bewildered physician, besieged by detail men, attractive literature, and the voluminous reports in the medical press, hardly knows which way to turn in the selection of the most effective antibiotic for his patient. The present purpose is not to review the choice of antibiotics for each of the infectious diseases but to emphasize the problem that exists in selecting the proper antibiotic and to discuss what the physician can do under the circumstances.

In comparison with the many antibiotics that are now available, penicillin is the most effective agent for many diseases, especially infections caused by gram-positive cocci, and it is the indicated drug for the treatment of gonorrhea and syphilis. But a most confusing aspect of penicillin therapy revolves about the question as to whether it is more advantageous to employ preparations of the antibiotic that are rapidly absorbed from the sites of administration or to use those forms that are slowly absorbed and in consequence remain in the blood for a longer period of time. It should be emphasized that the tremendous number of preparations of commercial penicillin now available have essentially the same antibacterial activity but differ primarily in their rates of absorption. The physician will make no mistake in treating those infections for which penicillin is indicated by using the inexpensive crystalline penicillin G dissolved in water, provided enough material is injected. Under no circumstances is it necessary to administer penicillin intramuscularly more frequently than every four to six hours. Infections due to those bacteria highly sensitive to penicillin, such as pneumococci and group A hemolytic streptococci, can be treated with injections given intramuscularly every 12 hours. Aqueous solutions of penicillin G in large doses are preferred for the therapy of subacute bacterial endocarditis and for staphylococcal sepsis. On the other hand, when penicillin is used for

1 Fatal Enterotoxic Reactions Caused by Antibiotic Therapy editorial. *Minnesota Med* 36: 63 1953

2 Waisbren B A and Hall W H Personal communication to the author

3 Weinstein L The Spontaneous Occurrence of New Bacterial Infections During the Course of Treatment with Streptomycin or Penicillin *Am J M Sc* 214: 56 1947

prophylactic purposes, and in the treatment of those diseases in which a low concentration of penicillin is sufficient for the disposal of sensitive bacteria, there are advantages in using preparations of so-called depot penicillins. The physician need inject such a preparation only once every 24 hours, and, in some instances, every 48 to 72 hours. Crystalline penicillin G may be administered intermittently by the intravenous route, and under some circumstances this procedure has certain advantages, such as in the treatment of subacute bacterial endocarditis, lung abscess, and pneumococcal meningitis. The usual practice is to augment the standardized intramuscular doses with injections given intravenously.

Streptomycin and dihydrostreptomycin have essentially the same antibacterial activity. While either drug is effective in the treatment of tuberculosis, streptomycin is used more frequently than dihydrostreptomycin. Either drug is the agent of first choice for the therapy of tularemia. Streptomycin can be used in combination with other antibiotics and with the sulfonamides, as will be pointed out shortly.

In the practice of medicine it is often impossible to acquire precise laboratory information that will define the etiological agent responsible for an infection. Under these uncertain circumstances, the physician can turn to the broad spectrum antibiotics that affect gram-positive and gram-negative bacteria, as well as the rickettsiae, and even some of the larger viruses. These antibiotics have an added virtue in that they can be administered orally. With either aureomycin or oxytetracycline, many diseases can be adequately treated by prescribing a total daily dose of only 1 gm, 250 mg being given every six hours. Because chloramphenicol does cause aplastic anemia, I have reserved this drug for the treatment of typhoid and infections not favorably influenced by aureomycin or oxytetracycline. Except for local purposes, bacitracin has been cautiously used systemically only in those cases of staphylococcal sepsis where normal renal function is present. This also applies to polymyxin B, which is the drug of choice for serious infection due to *Pseudomonas aeruginosa* (pyocyanus). As already noted, neomycin is being used in these clinics orally, and preliminary observations indicate that a total daily dose of 750 mg may be administered parenterally without toxic manifestations. Erythromycin and carbomycin have a more restricted antibacterial activity than aureomycin or oxytetracycline, but these drugs have been found useful for infections due to gram-positive cocci.

An aspect of antibiotic therapy that has occasioned considerable misunderstanding relates to the simultaneous use of two or more antibiotics. It has been demonstrated in the laboratory that the killing effect of two antibiotics for bacteria may be less efficient than if the more active of the two drugs were selected and used alone. This is an expression of antagonism.⁴ There is no question that under certain restricted experimental conditions antibiotic antagonism may be exhibited, but in actual clinical practice it is highly doubtful that significant antagonism occurs. A possible exception to this conclusion relates to the simultaneous treatment of pneumococcal meningitis with penicillin and aureomycin.⁵ It would appear that better results could be obtained in the treatment of this disease when penicillin

was used alone. While the clinician, in the light of present knowledge, need not concern himself too much with the problem of antagonism of antibiotics in the human body, there are definite advantages in administering two antibiotics under certain conditions. There are two sensible indications for the utilization of combinations of antibiotics. First, clear-cut laboratory and clinical data are now available in which it has been demonstrated that two antibiotics will exhibit a synergistic effect against a given species of bacteria. This means that the killing action of the agents is greater than that obtained by adding together the independent effects of each antibiotic. This has been demonstrated in the treatment of subacute bacterial endocarditis with penicillin and streptomycin, in cases of staphylococcal sepsis in which penicillin and bacitracin have been used, and in some cases of brucellosis in which aureomycin has been administered along with streptomycin, however, such indisputable examples of synergism are the exception rather than the rule. Tuberculosis has been treated effectively with a combination of streptomycin and *p*-aminosalicylic acid or isoniazid, although the latter two drugs cannot properly be considered antibiotics. A second general indication for the use of combinations of antibiotics arises out of desperate clinical conditions in which an undefined mixed type of bacterial infection exists. These conditions include the rupture of a hollow viscus such as a perforated peptic ulcer, or the perforation of an appendix, where the bacterial flora of the intestinal tract may find its way into the peritoneal cavity. Under such circumstances I have not been sanguine enough to rely on a single suppressive agent like aureomycin or oxytetracycline but have administered penicillin and streptomycin empirically, and at times, along with aureomycin, in an attempt to keep the infection localized and the blood stream sterile. In an empirical fashion also, combinations of antibiotics have been tried in chronic infections of the urinary tract with variable results. It is apparent that present knowledge affords but limited indications for the use of combinations of antibiotics in the treatment of systemic infections. Optimum therapeutic results can be achieved in the majority of infectious processes by selecting the most active single antibiotic. The widespread practice of employing two, three, and even four antibiotics at the same time is inexcusable in most instances.

ANTIBIOTICS IN THE MANAGEMENT OF INFECTIONS OF THE URINARY TRACT

A perplexing therapeutic problem frequently confronting physicians concerns the use of the antibiotics in infections of the urinary tract. Although brilliant results often occur in the therapy of acute cases, the more chronic infections do not yield so readily. Because chronic disease is oftener associated with therapeutic failures, it is well to refer to the factors contributing to the deficiencies of the antibiotics under these conditions. As noted in the table, one of the commonest causes of

4 Jawetz, E. and Gunnison, J. B. An Experimental Basis of Combined Antibiotic Action. report of the Council on Pharmacy and Chemistry J. A. M. A. 150: 693 (Oct. 18) 1952.

5 Lepper, M. H. and Dowling, H. F. Treatment of Pneumococcal Meningitis with Penicillin Compared with Penicillin Plus Aureomycin. Studies Including Observations on an Apparent Antagonism Between Penicillin and Aureomycin. A. M. A. Arch. Int. Med. 88: 489 (Oct.) 1951.

failure, even though the proper antibiotic is selected, is obstruction along the urinary tract, which impedes the free flow of urine. Unless the obstructing process is removed, favorable results with antibiotics will not be achieved, and relapses will frequently occur. Unrecognized tuberculosis of the genitourinary tract will not respond satisfactorily. Not infrequently, more than one species of micro-organism has invaded the tissues, and the selected antibiotic may be inactive against one of them. Finally, micro-organisms resistant to the administered antibiotics may be the cause of chronic disease. The species of micro-organisms that oftenest cause infections of the urinary tract include the following: *Escherichia coli*, *Aerobacter aerogenes*, *Pseudomonas aeruginosa*, *Proteus vulgaris*, *Streptococcus faecalis*, *Micrococcus pyogenes*, *Klebsiella pneumoniae*, and *paracolon bacillus*. It will be noted that most of the species involve gram-negative organisms found in the feces. Except in cases of infections due to *M. pyogenes* and infections caused by *Str. faecalis*, it becomes obvious why penicillin is not the best agent for the treatment of urinary tract infections. In fact, better results are often achieved with

Factors Contributing to the Failure of Antibiotics and to Chronicity in Infections of the Urinary Tract

Impediments of free flow of urine

Obstruction at bladder neck
Pregnancy
Hydronephrosis
Calculi
Malignant lesions

Tuberculosis

Presence of infection due to two or more species of micro-organisms

Presence of micro-organisms resistant to antibiotics

one of the sulfonamide preparations. In general, I have had the most favorable therapeutic results in infections due to coliform organisms when I used aureomycin. Experience with oxytetracycline has been limited. The two species of micro-organisms that are difficult to eradicate from the urinary tract are *Ps. aeruginosa* and *P. vulgaris*. The former species has been found to be highly resistant to most of the commonly used antibiotics. If normal renal function is present, polymyxin B may be tried in an effort to eliminate the organisms. Another possibility for *Pseudomonas* organisms involves the use of streptomycin along with sulfadiazine. Organisms belonging to the *Proteus* group have often been found sensitive in vitro to penicillin and chloramphenicol. Either or both of these drugs administered simultaneously have been successfully used in eliminating this species.

6 McCurdy R. S. and Neter E. Effects of Penicillin and Broad Spectrum Antibiotics on Emergence of Gram Negative Bacillary Flora in Upper Respiratory Tract of Infants. *Pediatrics* 9: 572 1952. Yow E. M. Development of *Proteus* and *Pseudomonas* Infections During Antibiotic Therapy. *J. A. M. A.* 149: 1184 (July 26) 1952.

7 Walsbren B. A. Bacteremia Due to Gram Negative Bacilli Other Than the *Salmonella*. A Clinical and Therapeutic Study. *A. M. A. Arch. Int. Med.* 88: 467 (Oct.) 1951.

8 Borden C. W. and Hall W. H. Fatal Transfusion Reactions from Massive Bacterial Contamination of Blood. *New England J. Med.* 245: 760 1951.

9 Wise R. I., Shaffer J. M. and Spink, W. W. The Syndrome of Vascular Collapse Due to Gram Negative Bacteria. Its Management with Norepinephrine and Antibiotics. abstracted *J. Lab. & Clin. Med.* 40: 963 1952.

A disturbing feature of urinary tract infections is that the disease is not infrequently caused by more than one species of bacteria. Therapy may be aimed at one species with apparent success, only to have a relapse occur, but a second species of organisms may then be apparent in the cultures. For this reason, combinations of antibiotics may have to be employed.

BACTEREMIA DUE TO GRAM-NEGATIVE BACILLI

A problem closely related to urinary tract infections is the invasion of the blood stream by coliform organisms. This type of bacteremia is occurring with increasing frequency, judging by the number of cases clinicians are seeing, and this rising incidence may be due in part to the selective action of the antibiotics in which the growth of the more sensitive bacterial species is subdued, thus permitting the multiplication of the less sensitive gram-negative organisms.⁶ Walsbren⁷ was able to collect within one year 29 cases of bacteremia due to gram-negative bacilli other than *Salmonella* at the Minneapolis General Hospital. He called attention to two forms of clinical courses exhibited by patients having this type of bacteremia. The first group included patients who were febrile but alert. In such cases the pulse was bounding, but the blood pressure was normal. The second group demonstrated a picture of shock with high fever, but the skin was clammy, the pulse thready, and the blood pressure very low. These clinical manifestations were associated with bacteremia due to *Escherichia coli*, *Aerobacter aerogenes*, or *Proteus* organisms. He had one case of shock due to *paracolon bacilli*. Borden and Hall⁸ have also described this syndrome of shock and death as a result of bacteremia due to *paracolon* organisms. It is of interest that Walsbren did not uniformly observe shock in patients having a bacteremia due to *Pseudomonas aeruginosa*. The most frequent portal of entry in his cases was the genitourinary tract, and the commonest precipitating factors were catheterization and instrumentation of the urinary bladder.

The treatment of patients with bacteremia due to gram-negative bacilli poses several problems. Since most of the cases involve patients of advanced age, prompt supportive measures should be instituted along with antibiotic therapy. In initiating treatment, I select a broad spectrum antibiotic, such as aureomycin, and administer the drug in an intravenous infusion. From 250 to 500 mg. of aureomycin is given in 200 ml. of sodium chloride solution every 8 to 12 hours. In the meantime, cultures of blood are kept under observation and sensitivity tests with the various antibiotics are undertaken as soon as isolations have been made. If the patient is in a state of shock, immediate efforts should be made to elevate the blood pressure, which can be done with *l*-arterenol.⁹ The failure of a patient to respond satisfactorily several hours after the first dose of aureomycin may suggest the presence of a bacteremia due to *Proteus* organisms, and large doses of penicillin along with chloramphenicol should be administered. In desperate cases, penicillin, aureomycin, and chloramphenicol have been used until the causative organism has been identified.

The seriousness of this form of bacteremia may be judged from the experience at the University of Minne-

sota Hospitals From March, 1951, to July, 1952, observations were made on 53 patients from whose blood gram-negative bacilli were isolated. Eight of these patients exhibited shock, the bacteremia being due to *Aerogenes* in three, *Esch coli* in two, paracolon bacilli in one, and *Salmonella typhimurium* in one. Although these patients received *I*-arterenol and antibiotics, six of the eight died.

STAPHYLOCOCCIC SEPSIS

When penicillin was first introduced for clinical trials, it was soon established that this agent would resolve many therapeutic problems relating to the management of staphylococcic sepsis. A decade has now elapsed in which penicillin and other antibiotics have been thoroughly evaluated in patients with staphylococcic infections. An initial feeling of optimism over what had been accomplished has been succeeded by waves of increasing pessimism. Early investigations indicated that the vast majority of strains of staphylococci isolated from human sources were sensitive to penicillin. This *in vitro* sensitivity was reflected in excellent therapeutic results with the drug in patients. But with the passage of time, more and more patients were encountered who were suffering from staphylococcic infections in which the offending organism was highly resistant to penicillin. In various parts of the world, there was every indication that the widespread use of penicillin had resulted in the appearance of highly resistant strains of staphylococci. This state of affairs has been demonstrated in this clinic at present, where over 50% of the strains of staphylococci isolated from human sources are highly resistant to penicillin. In other words, if penicillin were to be used in patients with staphylococcic sepsis, there would be less than a 50-50 chance of the drug being effective. When other antibiotics became available for staphylococcic diseases, the story of penicillin resistance was repeated. Strains highly resistant to streptomycin soon appeared with the increasing frequency. Resistance to aureomycin and oxytetracycline is now such a common phenomenon that approximately 40% of the strains isolated at the University Hospitals are resistant to these agents. The introduction of erythromycin appeared to resolve the problem of antibiotic resistance temporarily, but recent evidence indicates that erythromycin-resistant strains of staphylococci have appeared as a result of therapy with that agent.¹⁰ The seriousness of the problem of staphylococcic sepsis was emphasized for the staff during the last week in 1952, when seven patients with staphylococcic septicemia were encountered on the teaching services of two hospitals, and four of these patients had acute staphylococcic endocarditis.

While there is no entirely satisfactory answer, at present, to the therapy of patients with staphylococcic infections, much can be accomplished with the antibiotics when the clinician is guided by *in vitro* sensitivity studies. The strain of *Staphylococcus* responsible for the infection should be isolated as soon as possible and subjected to the *in vitro* action of the different antibiotics. When the organisms are sensitive, penicillin is still the antibiotic of choice in the treatment of staphylococcic infections. If the serious nature of acute staphylococcic endocarditis is considered, it is remarkable that approximately half

of the patients have been reported as recovering following the use of penicillin.¹¹ Even in the case of penicillin sensitive staphylococci, large doses of the antibiotic should be used, and treatment continued for many days, and even weeks, after apparent recovery. A frequent mistake is to discontinue therapy too soon. Crystalline penicillin G in water can be administered intramuscularly every four to six hours in a dose of 500,000 units. In addition, "booster doses" should be administered intravenously in doses of 1 million units in 10 ml of sodium chloride solution every 12 hours. These latter doses should be continued until the disease is well under control, and then the dose of penicillin should be gradually reduced. In the cases of severe staphylococcic sepsis with bacteremia, and particularly in those patients having endocarditis, bacitracin has been given simultaneously with penicillin, providing the strain was sensitive to bacitracin and normal renal function was present. Since bacitracin is nephrotoxic, minimal doses have been used in the range of 20,000 units administered intramuscularly every six hours. The combination of bacitracin and penicillin need only be used in the initial week or two, after which the bacitracin should be discontinued. If the strain of *Staphylococcus* proves to be highly resistant to penicillin, it is necessary to turn to other antibiotics. Some patients have responded satisfactorily to either aureomycin or oxytetracycline, where the organisms have been sensitive to these drugs. I have used aureomycin intravenously in a dose of 300 to 500 mg given intravenously in 200 ml of sodium chloride solution every 8 to 12 hours. If improvement occurs, the drug is then administered orally alone in a dose of 0.5 gm every six hours. I do not encourage the use of aureomycin or oxytetracycline along with penicillin. More recently, erythromycin has been employed in the clinic for the treatment of infections due to penicillin-resistant staphylococci, and, while the early results have been encouraging, I anticipate the emergence of erythromycin-resistant strains. The drug has been administered orally in a dose of 200 to 300 mg every six hours. A combination that has been tried recently in two patients with favorable results suggests that further trials should be made and involves the use of 20,000 units of bacitracin given intramuscularly every six hours and 300 mg of erythromycin administered orally every six hours. In severe cases of sepsis, this combination has been given for two to three weeks, and then erythromycin continued alone for another week or two. Preliminary investigations with carbomycin indicate that it is also of value in the treatment of staphylococcic infections, and should be administered in a similar manner.

COMMENT AND CONCLUSIONS

The rapid and extraordinary achievements in the treatment of infectious diseases constitute one of the outstanding advancements of modern medicine. This field of inquiry is not static, and investigations are continuing in the search for agents that will yield optimum results with the least harmful effects for the patients, and for

10 Haight T H and Finland M. Resistance of Bacteria to Erythromycin. *Proc Soc Exper Biol & Med* 81: 183, 1952.

11 Dowling H F, Lepper M H, Caldwell E R and Spies H W. Staphylococcic Endocarditis. An Analysis of 25 Cases Treated with Antibiotics. Together with a Review of the Recent Literature. *Medicine* 31: 155, 1952.

successful therapy of diseases due to viruses and fungi. It is difficult for the busy practitioner and for a hospital staff to keep up with the more recent developments. In order to crystallize the available information for practical purposes, it is suggested that each hospital staff, and especially the larger general hospitals, have a standing committee on chemotherapy, for the purpose of evaluating and recommending standard procedures for the use of the antibiotics. The various services and specialties should be represented, including the hospital pharmacy. In the teaching centers, a member of the department of

pharmacology would be a valuable addition. Such a committee could periodically survey the recent developments, take inventory of problems that have arisen in their own hospital, and indicate the drugs, schedules of doses, and methods of administration for the various clinical conditions. With the increasing cost of medical care, the committee could also aid the pharmacist and the purchasing department in selecting those therapeutic agents that are less expensive and at the same time just as effective as the more costly antibiotic preparations.

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CRANIOCEREBRAL INJURIES

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This era of mechanization, with emphasis on high speed transportation, has increased the incidence of injuries to the head and all other human tissues. Therefore, in addition to a neurological examination, a careful, complete, general examination is imperative before the proper course of any treatment can be planned and instituted. All injuries must be treated in order of importance before definitive treatment of the craniocerebral injury is embarked on. Active hemorrhages must be arrested, shock eliminated, and obstructed respiratory pathways cleared. If simple oropharyngeal suction is inadequate, a tracheotomy will be necessary. The different pathological lesions resulting from craniocerebral injuries and their respective treatment can be conveniently discussed by consideration successively of the tissues from the scalp to the ventricles.

INJURIES TO THE SCALP

Traumatic lesions of the scalp may be minor, and the contusions and abrasions may require nothing more than thorough, gentle lavage with soap and water and application of nonadhering dressing of penicillin ointment or the like. Major scalp lacerations or avulsions usually require débridement, hemostasis, suturing, or some plastic procedures. To cover a small scalp loss resulting from an avulsion, the surgeon, after properly shaving, cleansing, and débriding, may simply undermine subgaleally the surrounding scalp in a radial fashion until the scalp will stretch without much tension, cover the scalp defect, and allow wound edges to be approximated with sutures.

Sometimes a large area of scalp is lost and one or two pedicle scalp flaps may have to be mobilized and swung into position to cover the denuded area. In so doing the surgeon must remember the blood supply and locate the flap's pedicle so that the arterial blood supply to the flap is maintained. If the bone is bared of pericranium, the swinging of pedicle flaps should be delayed until there is present a bed of granulation tissue with good, active circulation. Such a bed of granulation tissue can be encouraged to grow if multiple drill perforations are made through the outer table of the skull. When the granulations springing from the perforations in the outer

table become confluent, a full thickness pedicle scalp flap or small free partial thickness skin grafts or a combination of both may be swung or laid in place.

BONE AND DURA INJURIES

A skull fracture should in part indicate the amplitude of the forces that acted to cause the head injury. The fracture per se is not necessarily serious unless there is a depression of the skull over an essential area of cortex like the motor convolution or visual area, or the depression causes impingement on a cranial nerve as it makes its exit through a skull foramen. Skull depressions and foraminal impingement should be removed as soon as practical. Delay may cause irreversible changes and permanent disability. When the depressed bone fragments have been removed, an intradural inspection of the brain should be made. If hemorrhagic, necrotic brain tissue is present, that should be removed and the dura closed. In closed, clean wounds in children, some bone fragments should be placed in the area of decompression where they will act as osteogenic foci and promote skull reformation, which is sometimes complete and cosmetically satisfactory. Similarly treated small skull defects in adults may become solid enough to prevent pulsations and also produce a satisfactory psychological and cosmetic result. In cases with compounded skull fractures, the surgeon risks promoting infection if he replaces the bone fragments, even with liberal use of chemotherapeutic and antibiotic agents. It is safer to use tantalum or other materials for cranioplasty months after the healing of compound skull fractures.

A fracture in the region of the paranasal sinuses or thru the petrous pyramid may be associated with a tear in the dura and arachnoid, thus allowing cerebral spinal fluid to escape into the nasal cavity or auditory canals. Through such fractures and dural tears micro-organisms may enter the cranial cavity, causing meningitis and brain abscesses. Since meningeal tears over the paranasal sinuses are potentially serious, they should be "patched" intracranially as soon as the patient's condition permits. Through a transfrontal craniotomy the dural tear can be exposed and easily covered with a piece of epicranium, which can be obtained from along side the operative scalp incision. Fascia lata from the thigh is thicker, stiffer, and more difficult to bring into water-tight juxtaposition.

position over the irregular surface of the base of the anterior fossa than is the thin, more flexible pericranium. Scarifying the dura on which the patch is to be laid promotes adherence and revitalization of a free graft.

Dural tears over the petrous pyramid with cerebrospinal fluid leakage into the external or internal auditory meatus usually can be treated satisfactorily without surgery by having the patient lie on the affected side with the head elevated. In such a position the brain acts as a tampon and soon fibrous tissue closes the dura tear. All attendants should be warned to keep applicators and other cleansing devices out of the draining ear, and a dressing fixed over the ear with adhesive tape and marked "keep out" will be helpful in this respect. Patients with cerebral spinal fluid otorrhea or rhinorrhea should be given therapeutic doses of sulfadiazine and sulfamerazine because these sulfonamide compounds are secreted into spinal fluid in concentrations approximately one-half those in blood. For adults, a dose of 1 gm of mixture should be given every three to six hours with a similar amount of sodium bicarbonate, starting immediately after the accident. Fluids should be administered in amounts short of promoting cerebral edema yet causing excretion of 1,200 to 1,500 cc of urine every 24 hours, a quantity that will usually prevent sulfonamide crystalluria or anuria. In addition to the sulfonamide drugs, aureomycin, 250 to 500 mg every three to four hours, should be given because this particular antibiotic is also secreted into cerebral spinal fluid.

BRAIN, DURA, AND DURAL BLOOD VESSELS

When the dura is lacerated by a depressed fragment of skull, the underlying brain and its blood vessels are usually lacerated, too. By suction the hemorrhagic, devitalized brain tissue should be carefully removed and all bleeding controlled. If there has been a loss of dura, a free pericranial graft is taken and sutured in place, and if there has been only a dural laceration over the convexity of the brain, dural suturing will suffice. The other layers of tissues in the wound then can be treated appropriately.

Occasionally the dura subjacent to a fracture will not be lacerated but one of the dural arteries will be lacerated and an extradural hematoma forms. In such cases the patient usually suffers a head injury severe enough to become unconscious for a short period. When the patient recovers consciousness, he complains of headache and he has nausea and vomits. Usually within a matter of a few hours his condition deteriorates and he becomes progressively more lethargic, stuporous, and finally comatose. He may have a dilated pupil on the side of the extradural clot and often he will have a contralateral spastic weakness of extremities and increased tendon reflexes along with stiffness of the neck. The systolic blood pressure usually increases and the pulse and respiratory rates decrease. The lumbar spinal fluid is usually clear but the pressure is markedly elevated. Such a sequence of symptoms and signs should arouse the physician to make the diagnosis of supratentorial extradural hematoma and excite him immediately to have the clot removed surgically and to have the bleeding controlled.

Recently Schneider and Kahn¹ have emphasized the entity of extradural, infratentorial hematomas, which are easily overlooked because of low incidence of 0.5% of all extradural hemorrhages. A history of an injury to the occipital area with a fracture in this area and clinical signs referable to the neurological structures of that location, i.e., nystagmus, hyporeflexia, ataxia, and cerebellar fits, with cranial nerve dysfunction are reasons for considering the possibility of extradural infratentorial hematoma. Clear spinal fluid under increased pressure and progressively deepening stupor makes the diagnosis more certain. The treatment is like that of supratentorial extradural hematoma, namely, the surgical removal of the clot and arrest of hemorrhage. Since an associated supratentorial hematoma may be present, a trephine exploration should also be made superior to the lateral sinus and any hematoma there also removed.

CEREBRAL VEINS

Some patients, who are usually past 50 years of age, have head injuries and apparently suffer only a cerebral concussion or mild contusion with a short period of unconsciousness or have no period of unconsciousness but do have headache with or without nausea, dizziness, and other nervous symptoms for a short period. To all appearances, the patients recover and return to work but in a few weeks or even in three or more months they have a recurrence of headache, loss of interest in work and in their own personal appearance, clouding of sensorium, increasing somnolence, and occasionally urinary incontinence. These patients often have dilation of one pupil and maybe some other cerebral localizing signs. More frequently than not, they have xanthochromic spinal fluid with increased pressure and increased total protein. Usually x-ray examination of the skull reveals no skull fractures but the pineal body, if calcified, may be seen to be displaced from the normal midline position. Patients with such a sequence of symptoms and signs following head injury, regardless of how trivial, should have bilateral trephine explorations of the skull for subdural hematomas. Since about 50% of these subdural hematomas are bilateral, they should always be trephined bilaterally. Although skulls can be trephined any place, the optimum locations for the trephinations are in the coronal suture about 5 cm on each side of the sagittal suture. Another trephination in the temporal area on the involved side or sides makes for easy drainage. With a no. 14 or 16 French urethral catheter, all subdural adhesions can and should be broken to evacuate all loculations of blood. Drains should be left in the subdural space or spaces where hematomas have been evacuated. Rarely in an adult will the surgeon have to turn an osteoplastic flap to remove the hematoma. In infants, however, it is essential to turn a large flap and remove the neomembrane in order to prevent re-formation of hematoma or hygroma. If the trephination is done under local anesthetic on a stuporous patient, the patient may arouse during closure of the wounds and ask relevant questions. An interesting example was a stuporous obstetrician and gynecologist suffering from a large

1 Schneider R C, Kahn E A and Crosby E C Extradural Hematoma of Posterior Fossa Neurology 1:386 1951

subdural hematoma who aroused after drainage of the hematoma, and during closure of wounds called out from under the operative drape, "Use some K-Y [a lubricating jelly] on those needles"

Trauma is no doubt the greatest factor in production of subdural hematoma, even though some patients having subdural hematoma do not preoperatively recall having had head injuries. Postoperatively, when the sensorium has cleared, some of these patients will recall pertinent injuries such as arising under an open cupboard door and striking the head and having inconsequential headache of short duration. The injury was thought trivial and forgotten. Because the bleeding is venous in origin, only a small clot forms to produce the first symptoms. After passage of weeks or months the subdural hematoma becomes quite large and produces symptoms and signs indicating the gravity of the patient's condition. Subdural hematomas are common in alcoholic patients who have high thresholds to pain and high indexes of forgetfulness and euphoria. Bleeding intracranial aneurysms may be associated with a complicating subdural hematoma without associated head injury.

CEREBRUM AND VENTRICLES

Rarely there may occur an intracerebral hematoma or an intraventricular hematoma that results from tearing of the intracerebral and intraventricular vessels. When these occur, they are like subdural hematomas in that they produce symptoms and signs only after a latent period. They are usually misdiagnosed as brain tumors and are treated surgically. Postoperatively in retrospect these patients may recall a head injury. Contusions to the cerebrum are common traumatic lesions but only rarely are subtemporal decompressions necessary to save a life.

GENERAL PRINCIPLES IN TREATMENT OF HEAD INJURIES

A patient who receives a head injury may at the time of first examination have no signs of intracranial hematoma formation or intracranial pressure, so it is imperative that frequent neurological examinations be made and that the vital statistics be recorded graphically at frequent intervals, for example, every one-quarter hour until the patient reacts, then every hour until stabilized, and finally every three hours until it is safe to discontinue. A record of mental status should also be made every one-quarter hour until the patient reacts and then every hour or so, as the condition requires. For temperatures of 102 F rectally or above from 10 to 15 grains (0.6 to 1 gm) of acetylsalicylic acid should be given orally or per gavage every three to six hours. A minimum of bed covering or clothing is advisable. For higher temperatures the nurses should sponge the patient with a cool, moist cloth or cover with cold towels. An electric fan directed not at the patient but close to the patient should be helpful in decreasing the temperature.

Oxygen Administration and Position — All patients with serious head injuries who are unconscious should receive moistened oxygen administered through a soft nasal catheter at 3 to 5 liters per minute. The head of the bed should be elevated 45 degrees when the patient's cough and gag reflexes return and when the blood pressure, pulse, and respiration rate permit. The patient should be turned every one to three hours. When the bed

is level, nurses may turn the patient on the abdomen if there are no contraindications.

Pain — For pain and restlessness $\frac{1}{2}$ to 1 grain (30 to 60 mg) of codeine can be given hypodermically as necessary every two to four hours, or acetylsalicylic acid with or without $\frac{1}{4}$ to $\frac{1}{2}$ grain of codeine orally. If the patient is irrational and pain is not controlled with codeine, 2 to 4 drachms (8 to 15 cc) of paraldehyde in iced orange juice or other agent can be given orally or rectally, mixed with an equal amount of mineral or vegetable oil, every three hours as necessary. Morphine, which depresses respiration, as does intracranial pressure, should be avoided. Barbiturates should not be used, because they normally make the patient lethargic, as does increasing intracranial pressure. By avoiding these drugs, the observer gets a true clinical picture of the patient's condition without having to discount the influence of the drugs.

Bacteriostatic Agents — Antibiotics should be used prophylactically as indicated. Aureomycin is excreted into the cerebrospinal fluid and affects many gram-positive and gram-negative species of micro-organisms. If patients can not take aureomycin, another suitable antibiotic should be given. In cases in which meningitis complicates the injury, cultures should be made from spinal fluid and sensitivity tests made, and only those antibiotics should be used to which the organisms are most sensitive.

The sulfonamide drugs administered together are synergists. In central nervous system infections, a most effective combination is that of sulfadiazine and sulfamerazine, which are secreted into the cerebrospinal fluid in about one-half of their blood concentration. If the bacteria are not sensitive to sulfadiazine or sulfamerazine, however, they should not be used because of the risk of kidney complications. The optimum dose for adults is 1 gm (0.5 gm each) of sulfadiazine and sulfamerazine given with 1 to 2 gm of sodium bicarbonate every three to eight hours, depending on the size of the patient and the severity of the infection.

Fluids — Fluid intake should be limited to 1,500 cc for the first 24 hours or maybe longer, unless the temperature is 102 F or above or unless sulfonamides are used and then the intake should be increased as indicated in order to obtain a urinary output of 1,500 cc per 24 hours. Fluids may be given by vein, but, if the patient is unconscious, the fluid and diet, as a formula, may be given by gavage tube. In cases in which intracranial pressure is increased owing to cerebral edema associated with cerebral contusion, it is important to limit fluid intake and not give the sodium ion, to dehydrate by giving a saline cathartic (such as magnesium sulfate, sodium phosphate, or citrate of magnesia) every morning, to do spinal punctures, and to reduce pressure by one-half of the increased pressure (by one-half what the pressure is over the normal of 15 cm of water pressure).

Administration of hypertonic intravenous solutions probably is indicated in only a few cases of cerebral edema. The most valuable hypertonic solution is human serum albumin, which should be given in 60 to 80 cc amounts in not less than 10 minute periods, every 8 to 10 hours. It should be repeated as often as indicated. Lastly, in addition to the foregoing measures to reduce cerebral edema causing increased intracranial pressure,

extensive bilateral subtemporal decompressions may be in order, with removal of as much fluid from the subarachnoidal and subdural space as possible

Food—If the patient is conscious, he should be given a liquid to regular diet as tolerated. If he is unconscious, he should be given by gavage a formula, made up to 1,500 cc containing 1,500 calories, composed of whole milk, whole eggs, and molasses, 375 cc are given every six hours. The volume, the caloric content, and the frequency of administration may be varied to suit individual cases, and some all-inclusive vitamin preparation should be added. Medicaments for oral administration may be given in solution or be crushed and put into solution to be given through the gavage tube.

Antiserums and Antitoxin—Polyvalent antiserums should be given in all cases of contaminated wounds of the head, and tetanus antitoxin in cases of perforating or puncture wounds if the patient has not been protected with toxoid. If the patient has previously had toxoid, a booster dose may be all that is indicated.

Ambulation—Patients suffering from cerebral concussions should be ambulated as soon as they recover consciousness and stability. Those with severer injuries such as cerebral contusions with and without subarachnoid hemorrhages should be allowed to sit on the edge of the bed and dangle their feet about 24 hours after active hemorrhage has ceased. The amount of blood found in successive lumbar spinal taps should reveal when the active hemorrhage stopped. The initial activity should not be strenuous but should be limited to a few minutes of walking to the bathroom or the like. Subsequently the patient should rest and later be ambulated until he is able to remain out of bed and be active all the time. It is extremely important to examine the patient repeatedly for signs indicative of cerebral localization or increasing intracranial pressure, both of which might indicate hematoma formation. When the patient has recovered sufficiently, he should return to his job, at first maybe only for part time, but nonetheless working and making a part of his living. Patients with cerebral lacerations that required débridement may not be rehabilitated so rapidly, however, as soon as possible they should be allowed to dangle their legs, to get into a chair, to walk, and to work, and should be encouraged to engage in normal activities as much as possible.

Spinal Fluid Examinations—Not all patients suffering from head injuries need spinal fluid examinations. Lumbar puncture with pressure determination is indicated when the patients' vital signs and mental status suggest increasing intracranial pressure, which is usually manifested by progressively rising blood pressure, and by progressively slowing pulse and respirations. Such a patient usually becomes progressively more drowsy and finally stuporous and comatose, however, when the pulse is very rapid, respirations are very fast and shallow, and the blood pressure is low, such radical changes in vital signs are usually signs of a very serious circulatory and respiratory collapse and impending death. If in addition to changes of vital signs, there are cerebral localizing signs and the spinal fluid is clear and under increased pressure, it is almost certain to mean the patient has an extradural hematoma and needs immediate surgery. On

the other hand, if the patient has bloody spinal fluid under increased pressure, the examiner must be able to evaluate whether or not this is only a cerebral contusion with cerebral edema and whether or not surgical decompression is required. Patients with traumatic subarachnoidal hemorrhage usually have restlessness, headache, nausea and vomiting, photophobia, and a stiff neck but no cerebral localizing signs and no alteration in vital statistics. The spinal fluid in addition to being bloody will usually be under increased pressure. Daily or semidaily lumbar spinal drainage may be indicated to reduce the pressure by one-half of the increased pressure and to remove fluid until it is no longer bloody.

All elderly and some younger persons who have suffered cerebral contusions or worse lesions should be benefited by administration of $3\frac{3}{4}$ grains (250 mg) of caffeine sodium benzoate hypodermically every three hours from 6 a m to 9 p m. This drug seems to make the patients more responsive, alert, and active, and helps to clear their sensoriums so they can be discharged from the hospital and returned to daily routine more quickly.

Not infrequently a patient comes to the physician saying that he had a head injury a matter of days, weeks, or even months before and that he is "worried no end" because he has had a headache more or less ever since, and the headache is getting increasingly worse and interfering with his job and at times even preventing his sleep. The headache is worse if he is tired or nervous and if he works in the hot sun. In addition he complains of nervousness, easy fatigability, and forgetfulness. Those who associate with him complain of his irritability, and intolerance to noise and to children's play. Complete neurological examination, x-ray examination of the skull, electroencephalography, spinal fluid studies, and even air studies usually reveal no space-occupying lesion or other demonstrable organic brain disease. Repeated examinations, reassurance, encouragement from the physician, and the patient's own perseverance in an interesting job will divert his thoughts of his own condition and eventually bring about relief of symptoms. Such a syndrome is commonly called a post-traumatic syndrome. It is my personal experience to have patients with arterial hypertension frequently develop the so-called post traumatic syndrome, perhaps because they are basically inclined to worry or to work very hard.

SUMMARY

Head injuries are discussed in a general way, with emphasis placed on lesions that require surgical intervention. The general principles of treatment are discussed in detail.

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Weight Reduction and Atherosclerosis—The relationship between obesity and atherosclerosis has been studied in a large clinical experiment. Significant weight reductions in 39 patients revealed that the serum lipoproteins are significantly reduced by this procedure in those patients with initially high levels, but are not significantly altered in patients with initially low levels. The cholesterol levels are unchanged. If the hypothesis relating high serum levels of lipoproteins to the development of atherosclerosis can be confirmed, then this experiment will supply evidence indicating the beneficial effect of weight reduction.—F J Stare, M.D., Nutritional Research in Public Health, *Postgraduate Medicine*, April, 1953.

CHANGE IN ELECTROLYTES IN A CASE OF PARATHION POISONING

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and

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Our purpose in reporting this case of parathion poisoning is to make known (a) the observed changes in the serum pH and calcium, phosphorus, and potassium levels and (b) the hitherto unreported residual manifestations affecting the central nervous system resulting from anoxia, prolonged unconsciousness, convulsive seizures, electrolytic and pH shifts, and/or severe cholinesterase depression. These latter may serve as a warning of the potential toxic effects of the chemical in nonfatal cases. The former, it is to be hoped, will stimulate follow-up studies in order to determine whether the changes in pH and electrolyte concentration are as determinant of the variations in symptoms, the severity of poisoning, and the prognosis as are the changes in the cholinesterase levels of the plasma and cells.

REPORT OF A CASE

A 19 year old man had worked in close contact with parathion for a total of 69 hours before onset of illness (table 1). This man mixed materials in a spray tank and then delivered them to a speed sprayer. He never went inside the tank. He was equipped at the beginning of each day's work with clean coveralls, natural rubber gloves and hat, and a respirator. He took a shower at the end of each day's work before leaving the premises. Each day, he washed his hands and face before eating the noon meal. He was instructed to wash his hands and face at each of the two break periods during the day. He had never worked with parathion prior to this time. A cholinesterase determination,¹ done four days before his admission to the hospital, showed a level of 144% in the red blood cells and 82% in the plasma. He felt well on the morning of July 20, 1952, and, on reporting to work, he changed into clean protective coveralls, rubber gloves, and a mask. He worked mixing parathion throughout the morning as usual and noticed no ill effects. The weather was excessively warm and there was little breeze. He ate well at noon but shortly thereafter began to feel ill and told his co worker that he was dizzy. The superintendent was called immediately. He found the patient somewhat stuporous, perspiring freely, and complaining of nausea, vertigo, diminution of vision, and headache. The patient vomited shortly thereafter and was brought to the hospital emergency room at 4 p m the same afternoon. At that time he was unable to stand, was extremely groggy, and became comatose. His color was ashen gray, and respirations were labored. He appeared to be in rather profound shock, but his blood pressure was 154/84 mm Hg, his pulse 180, bounding and regular. His rectal temperature was 102 F. It was thought that he was gravely ill, and artificial respiration was begun immediately. The pupils were fixed and pinpoint, and there was marked conjunctivitis. There was copious sero-sanguinous, frothy exudate coming from the mouth and nose, and the neck veins were markedly distended. The heart sounds were normal except for a tachycardia. Moist rales were heard in the lung fields. The abdomen was normal, and the extremities showed marked decrease in only the deep tendon reflexes bilaterally. Babinski's sign was not elicited.

Voluntary respiration had ceased on admission, and the patient did not respond to painful stimuli. He underwent repeated intermittent generalized tonic and clonic convulsions of approximately two minutes duration. Oxygen was first ad-

ministered by mask and then continued by intratracheal tube so that the anesthetist might maintain forced respiration. In spite of therapy, voluntary respirations were not resumed until 10 30 p m. At that time, breathing became Cheyne-Stokes in character and, later, changed to typical Kussmaul's respirations. Normal respirations became established on the morning of July 21.

The patient was given 0.04 grain (0.002 gm) of atropine subcutaneously and 5 cc of nikethamide (Coramine) intravenously on admission. Intravenous administration of a solution of 5% glucose in saline was also started. During the first eight hours of hospitalization, the patient received 0.18 grain (0.011 gm) of atropine, of which 0.02 grain (0.001 gm) was given intravenously, 20 cc of nikethamide, 500 cc of citrated blood, and 2,000 cc of 5% glucose in isotonic sodium chloride solution, and 1,000 cc of 1/2 molar sodium lactate solution intravenously. Oxygen was administered by the anesthetist during this time, and 10 grains (0.65 gm) of phenobarbital sodium was given intramuscularly, plus 200 mg of secobarbital (Seconal) sodium intravenously in an effort to control the convulsions that occurred periodically throughout this period. It was soon noticed that the cannister on the anesthetic machine became too hot to touch. When the cannister was replaced, the same situation developed within 20 to 30 minutes. From this, it was assumed that the excessive activity of the soda lime must reflect a marked acidity in the expired air. Therefore serum pH and other blood chemistry values were determined, the serum pH at this time was 6.76 (table 2).

On the morning of the second hospital day, respirations were normal, but the intratracheal tube was left in place and administration of oxygen was continued. The patient was still unconscious. His rectal temperature varied from 102 to 103.6 F but tended to fall during the day. The pulse rate slowed to between 100 and 110 and became less bounding. During the preceding evening, the patient had vomited several times, and an intranasal tube was inserted for gastric lavage and drainage. This tube was left in place. The secretions from the respiratory tract decreased after atropine was given but were not well controlled for a period of at least 24 hours. An electrocardiogram showed no marked changes characteristic of potassium poisoning, although the serum potassium level was elevated. Because of his convulsive seizures, the needle came out of the patient's vein on numerous occasions, it was finally replaced by a polyethylene tube to prevent further extravasation of blood and other fluids into the subcutaneous tissues. During the 24 hours of the second day, the patient received 0.12 grains (0.007 gm) of atropine subcutaneously, 100 cc of whole blood, 4,000 cc of additional fluids, and 925 mg of secobarbital sodium administered intravenously to control convulsions.

Starting shortly after admission, a combination of penicillin and dihydrostreptomycin was given twice daily in an effort to prevent severe respiratory infection. Blood chemistry studies were repeated on the morning of the second day (table 2). The serum pH and the calcium-phosphorus ratio had returned to normal. A complete blood cell count made on admission was not remarkable except for a leukocyte count of 28,150. The urine showed albumin, 2+, and sugar, 4+, but this specimen was obtained after one liter of glucose had been given intravenously. Inadvertently, the vomitus, urine, and the excretions from the respiratory tract were discarded on the initial day. After that examination of these wastes showed no parathion, cholinesterase activity, or cholinesterase inhibitor effect. No information was obtained by analysis of the soda lime except that it had been neutralized by a considerable amount of acid.

On the morning of the third day, the pupils, which had hitherto been extremely small, began to dilate for short periods of time after atropine was given, and the cholinesterase levels began to rise satisfactorily in both blood and plasma. In the

1 Michel H O. An Electrometric Method for Determination of Red Blood Cell and Plasma Cholinesterase Activity. *J Lab & Clin Med* 34: 1564 1949

course of that day, the patient had many convulsions, the duration of these convulsions increased over that of the earlier ones, which had lasted two minutes. In this 24 hour period, he received a total of 700 mg of secobarbital sodium intravenously, 0.06 grain (0.004 gm) of atropine, 500 cc of whole blood, and 2,000 cc of $\frac{1}{2}$ molar sodium lactate. His rectal temperature reached a peak of 102 F, and he seemed generally improved.

On July 23, the convulsions ceased, but the temperature rose to 104.4 F. There were numerous liquid, involuntary stools. The urinary output by continuous catheter drainage remained

conscious for 84 hours. His temperature during this day rose twice to peaks of 104 F. His pulse rate remained about 100. He cooperated to the extent of expectorating mucus and swallowing with some difficulty. He asked for fluids. He had no convulsions during this day, and his pupils remained well dilated. He received no more atropine. In the course of the day, he received 500 cc of blood and 3,000 cc of other fluid via the polyethylene tube. He received 1,000 mg of oxytetracycline (Terramycin) intravenously, and administration of penicillin was continued. The cholinesterase levels had risen to 88% in the red blood cells and 61% in the plasma by 4

TABLE 1—Summary of Patient's Work with Parathion

Day July 19-20	Hours Worked Directly with Parathion	Hours Worked In Coveralls Contaminated by Parathion	Material Handled Lb			
			Borax	Wettable Sulfur	Parathion Powder (16% Wettable)	Arsenate of Lead
10	10		120	1,200	400	
11	12		60	600	200	64
			100	1,000	350	
12	10		100	1,000	300	94½
			45	450	150	
13	5		20	300	100	27
			30	300	100	
14	3	6	30	300	100	27
	5			800	96	
15	2			100	32	
16	4	8		275	88	
17	10		120	1,200	400	
18	0					
19	0					
20	8		130	1,300	450	
Total concentrated material			780	7,800	2,600	202½
Total diluted material				670	216	
Grand total			780	8,470	2,816	202½

* Of the 69 hours spent working with parathion 68 hours were spent working with concentrated material and 11 hours were spent working with diluted material.

TABLE 2—Results of Laboratory Studies of Blood and Serum

Hospital Day	1		2		3		4		5		6	7	8	9	12
Hour	4 p.m.	8 p.m.	8 a.m.	4 p.m.	8 a.m.	8 p.m.	8 a.m.	2 p.m.	8 a.m.	4 p.m.	8 a.m.	8 a.m.	8 a.m.	8 a.m.	8 a.m.
Cholinesterase level in % of normal															
Red blood cells	17	2.0	11.0	22.0	29	50	52	49	59	88	78	78	70	68	90
Plasma	14	14	14	7.1	17	39	39	42	67	61	61	60	75	76	119
Serum pH		6.70	7.89												
Calcium															
(mg per 100 cc)		6.0	10.0												
(mEq)		3.0	5.0												
Phosphorus															
(mg per 100 cc)		11.42	8.45												
(mEq)		6.6	2.0												
Potassium															
(mg per 100 cc)		42.6	32.08		30.2		17.0								
(mEq)		10.9	8.24		9.04		4.30								

* All cholinesterase determinations were calculated according to the method described by Michel.¹

satisfactory. In the 24 hours of July 23, he received 20 grains (1.29 gm) of phenobarbital sodium intramuscularly, 500 cc of whole blood, and 2,000 cc of 5% glucose in sodium chloride solution. He received only 0.04 grain (0.003 gm) of atropine, and his pupils now were normal in size.

Total medication in this first 80 hours of hospitalization, was two-fifths or 0.4 grain (0.024 gm) of atropine, 2,325 mg of secobarbital sodium, 25 cc of nikethamide, 30 grains (2 gm) of phenobarbital sodium, 2,500 cc of whole blood, and 12,000 cc of other fluids administered intravenously. The patient still had not regained consciousness. There was considerable subcutaneous swelling in both arms especially at the site of extravasation of fluids from the first days' intravenous injections in the right arm.

At 4 a.m. July 24, the fourth hospital day, the patient regained consciousness for the first time. He had been un-

p.m. on July 24. The swelling in both arms had decreased somewhat.

On the morning of July 25, the rectal temperature had dropped to 100.4 F, and the pulse was 84. The patient was extremely restless but showed no signs of any convulsive seizures. He was given sedatives and antibiotics and 3,000 cc of fluids was administered intravenously during the day. Swallowing was still difficult. Administration of oxygen by nasal catheter was continued.

On the morning of July 26, the sixth hospital day, the constant administration of oxygen was discontinued. Oxygen was administered occasionally by BLB (Boothby, Lovelace, Bulbulian) mask. His temperature did not rise. Blood, 500 cc., and 2,500 cc of fluids were given intravenously. The urinary output remained good, and the urine showed only 1+ albumin with a few red blood cells.

On July 27, one week after the patient's admission, the polyethylene tube was removed from his vein. His rectal temperature was 98.6 F, and his general condition was much improved. He received only 1,500 cc of fluids intravenously during this day. Administration of antibiotics was continued. Roentgenographic examination of the chest on the eighth hospital day revealed an increase in the lung markings, particularly in the right base.

Throughout the remainder of his hospital stay, which lasted until Aug. 7, 1952, the patient improved rapidly. Although the cholinesterase levels returned to normal, it was obvious that the patient was confused, somewhat amnesic, and definitely childlike in his reactions and attitudes. He had a rather severe stomatitis that was felt to be due in part to the antibiotics he had been given and in part to the trauma that resulted from intranasal and intratracheal intubation. He showed a peripheral neuritis that involved the thumb and first finger of the right hand, which presumably resulted from trauma to the antecubital space during convulsions while fluids were being administered intravenously.

At the time of discharge, the urine was normal except for a trace of albumin, routine blood values were entirely normal, and cholinesterase determinations showed a plasma concentration of 119% and a red blood cell concentration of 96%. Determinations of blood sugar, chloride, proteins, sulfobromo-

TABLE 3—Cholinesterase Activity in Blood

Age of Specimen	Cholinesterase Activity in % of Normal *	
	Red Blood Cells	Plasma
Specimen taken directly from donor	100%	133%
Specimen taken immediately after blood was drawn †	110%	133%
1 day	110%	133%
2 days	108%	130%
1 week	108%	132%
2 weeks	104%	118%
3 weeks	100%	110%

* All cholinesterase determinations were calculated according to the method described by Mlehel.¹

† Specimens from blood drawn in Baxter Transfuso vac (500 cc blood in 120 cc dextrose sodium citrate-citric acid solution) and refrigerated.

phthalein (Bromsulphalein), cephalin flocculation, and icterus index were normal a day after admission. The prothrombin time was very slightly increased.

COMMENT

Observation of this patient suggests to us that the clinical manifestations of parathion poisoning may not be entirely the result of the anticholinesterase activity and consequent acetylcholine action per se but that the anticholinesterase activity and acetylcholine action may represent in part the result of marked changes in electrolytes and serum pH. The possibility that there might be a decrease in cholinesterase activity in blood that has been allowed to stand for some time was entertained, but the decrease was found to be negligible (table 3). We are, of course, well aware that these findings represent only a single instance of severe poisoning and that these observations are unconfirmed and consequently permit no generalization. Individual and variable responses are recognized to be caused by poisons from the anticholinesterase group of parasympathomimetic chemicals. It is also recognized that the changes observed here may be neither characteristic nor typical. It is felt that the action of this group of substances is perhaps imperfectly understood.

SUMMARY AND CONCLUSIONS

Severe, acute parathion poisoning in a 19-year-old man is reported, and the changes in electrolytes and serum pH are noted. In retrospect, we realize, because of the delayed decrease in bronchial secretion and change in size of his pupils, that the patient was given inadequate amounts of atropine during the first eight hours of hospitalization. We feel that his recovery was due in part to more adequate amounts of blood used. The relatively rapid rise in the cholinesterase activity from an extremely low level is thought to have been the result of these transfusions. The advisability of early treatment of parathion poisoning is emphasized, administration of infusions containing properly adjusted and adequate amounts of calcium and sodium bicarbonate is suggested.

Information from the patient's employers and from clinical evidence suggests that poisoning was the result of accidental or careless ingestion of a relatively large amount of the chemical. This emphasizes the importance of scrupulous adherence to safety measures and techniques.

It is not our intention to postulate any new mechanism for the symptomatology of parathion poisoning but merely to mention the possibility that mechanisms do exist in addition to those that have already received attention. We realize that a single isolated case of severe poisoning furnishes inadequate material from which to draw any general conclusions. Our observations on the electrolytic changes, especially the reversal of the calcium-phosphorus ratio and the prolonged elevation of the potassium level, seem to indicate the possibility of a somewhat different approach to an inadequately understood problem. We hope that other, more experienced investigators may, on a larger and more carefully controlled scale, elucidate or refute the importance of these isolated observations.

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Prognosis in Coarctation of Aorta—Since most children and young adults with coarctation of the aorta do not have symptoms, there is a rather widespread belief that the malformation is an innocuous affair. The fact that a few humans with aortic narrowing have lived to advanced old age has given a false impression that the prognosis is generally not serious. There is now increasing evidence to show that coarctation leads to crippling complications or even fatality in a very large percentage of cases.

A study of the prognosis for humans with coarctation has indicated that about one fourth of them have lived through a rather long life with little or no incapacitation, that about one fourth have died of rupture of the aorta, that one fourth have died from superimposed bacterial endarteritis, and one fourth have died from the hypertensive state. In the last group, death occurred either from cardiac failure or from intracranial hemorrhage.

The average age at death (including persons who have died from coarctation or one of its complications) has been about 30 years. It has become quite clear that, while some subjects may live a long and useful life with coarctation, the abnormality is one which generally brings great hazards to its possessor. It is this knowledge which prompts surgeons to attempt removal of aortic obstructions in the hope of bettering the outlook, particularly in alleviation of the hypertensive state.—R. E. Gross, M.D., *Coarctation of the Aorta, Circulation*, May, 1953.

PARENTERAL ADMINISTRATION OF TRYPSIN

CLINICAL EFFECT IN 538 PATIENTS

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Intravenous administration of trypsin consistently produced fibrinolysis in recent dog and rabbit experiments.¹ This observation suggested that intravenous trypsin therapy might affect the fibrin network of human intravascular thrombi. Accordingly clinical studies were initiated, and we now report satisfactory results with trypsin in 71 of 74 patients with thrombophlebitis (63 patients receiving it intravenously and 11 intramuscularly). During treatment of these patients with trypsin it was apparent that the associated signs and symptoms of acute inflammation subsided and cleared up in two to three days, whereas lytic effects on the thrombi occurred much more slowly. This unexpected finding suggested that trypsin initiates biochemical reactions resulting in prompt and sustained subsidence of acute inflammation. Thrombolytic changes apparently occur later. It is the purpose of this paper to present clinical observations based on 6,456 trypsin infusions to 538 patients supporting the view that trypsin rapidly suppresses acute inflammation of diversified origin (bacterial, viral, allergic, and chemical).

METHODS AND MATERIALS

Under sterile conditions a vial containing 10 mg of trypsin was dissolved in 3 cc of isotonic sodium chloride. This solution was then added to 100 cc of isotonic sodium chloride, and 1 cc (10 mg) of methapyriline hydrochloride (Histadyl) was introduced into the flask. Since trypsin in solution loses approximately 40 to 50% of its proteolytic action in three hours, the intravenous infusion was started immediately following preparation of the solution. Each dose consisted of 10 to 15 mg of trypsin dissolved in 100 cc of isotonic sodium chloride solution. A typical course of therapy consisted of 10 mg of trypsin per infusion, twice daily for five to seven consecutive days. Earlier in the investigation larger single doses, 1 cc, 250 mg, were used with no greater therapeutic effects being noted in the conditions under study. The rate of intravenous administration of trypsin did not exceed 30 drops per minute after it was observed that this factor was critical in producing untoward reactions. Citrated and whole blood samples were obtained prior to, at the half-way mark, and at the termination of each trypsin infusion. All prothrombin determinations were done according to the method of Quick. Fibrinogen was determined by the method of Greenberg. The Innerfield, Angrist, and Benjamin method² of antithrombin titer determination was utilized. Factor 5 was measured by the method of Stefanini, and the Conley, Ratnoff, and Hartmann method for fibrinolysis assay was utilized. The coagulation time determinations were done by the Lee and White method. Blood clotting viscosity studies were determined with the use of the Rich-Roth "ultra-viscose" (an electronic instrument that uses ultrasonic waves to measure the viscosity of Newtonian liquids and the

apparent viscosity of non-Newtonian liquids continuously and automatically). In addition the Coombs' test was done, as well as complete blood cell counts and differentials and albumin-globulin ratios.

The patients comprising the study were divided into two groups: (a) control patients, including those with arteriosclerotic heart disease (35), hypertensive vascular disease (35), hypertrophy of the prostate (15), and diabetes mellitus (25), and (b) patients with acute inflammation who were treated with intravenously administered trypsin (428). The control patients were elderly, chronically ill persons selected from the wards of a large municipal hospital, none of whom exhibited gross thrombotic or inflammatory manifestations. The patients who presented evidence of acute inflammation received either complete or incomplete courses of intravenously administered trypsin (see table). The anatomic distribution of thrombophlebitis included the calf, the popliteal region, and the thigh. The signs and symptoms consisted of pain, edema, redness, Homans' sign, fever, elevated sedimentation rate, leukocytosis, and inability to walk. Since in this study the acute inflammatory reaction following thrombophlebitis was not microbial in origin, antibiotics were not used during this investigation. Prior to hospitalization, several patients were treated at home with bed rest and antibiotics without effect. All patients with arthritis presented evidence of rheumatoid arthritis according to the standards of the New York Rheumatism Association as given by Steinbrocker, Tragger, and Batterman. Clinical and roentgenographic evidences of peripheral rheumatoid arthritis were obtained, and only patients having a chronic, but active, course of the disease were selected for treatment. Activity was determined by joint immobility, heat, soft tissue swelling, redness, joint effusion, pain, tenderness, fever, leukocytosis, and an elevated sedimentation rate. The patients were both men and women, with ages ranging from 19 to 64 years,

Mr Daniel Pitcoff gave technical assistance. Dr Franklyn Theis Jr, Nyack, N. Y. supervised the care of six patients with retinal thrombosis.

The trypsin used in the experimental and clinical work was obtained from the Armour Laboratories (Trypsin and Enzar) and the National Drug Company (Parezyme and Parezyme in oil).

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Assistant Professor of Physiology (Dr Innerfield) and Clinical Professor of Pathology (Dr Angrist), New York Medical College Research Associate in Pathology and Chief of the Clinical Enzymology Clinic (Dr Innerfield), Director of Pathology (Dr Angrist) and Associate Pathologist and Associate Hematologist (Dr Schwarz), Jewish Memorial Hospital. Also affiliated with the Flower and Fifth Avenue Hospitals and the Metropolitan Hospital.

1 (a) Innerfield I, Schwarz, A W and Angrist A A. The Fibrinolytic and Anticoagulant Effects of Intravenous Crystalline Trypsin. *Bull. New York Acad. Med.* 28: 537-538 (Aug.) 1952. (b) Intravenous Trypsin: Its Anticoagulant, Fibrinolytic and Thrombolytic Effects. *J. Clin. Invest.* 31: 1049-1055 (Dec.) 1952.

2 Innerfield I, Angrist, A. and Benjamin J W. Antithrombin Titer in Acute Pancreatitis. *Am. J. Med.* 12: 24-33 (Jan.) 1952.

the average being 43. The duration of the disease varied from 6 months to 20 years, with an average of 11 years. Thus, this study comprised a group of patients in whom

plasma antithrombin and prothrombin inhibitor determinations were performed before and at the midway point of each trypsin infusion.

Clinical Results of Parenteral Administration of Crystalline Trypsin in 428 Patients

Diagnosis	No of Patients	Average No of Treatments	Average Single Dose, Mg	Average Days of Treatment	Results
Acute rheumatoid arthritis	18	9	15	7	Rapid reduction in edema, less pain, greater range of motion, lowering of ESR in 15 patients. 3 relapses.
Acute gouty arthritis	7	7	10	6	Prompt subsidence of signs of acute inflammation in 5 patients. One patient showed improvement after 5 treatments. One did not respond.
Acute thrombophlebitis	74	11	10	6.5	Rapid decline in signs and symptoms of acute inflammation in 71 patients. Three embolic patients (carcinomatous) did not respond.
Thromboangitis obliterans	8	10	10	7	Prompt relief of intermittent claudication. Each patient relapsed within 4 weeks. Symptoms again controlled under ambulatory treatment with trypsin.
Coronary thrombosis	7	8	10	8	One death. Remaining 6 patients made uneventful recovery.
Atypical virus pneumonia	9	10	10	0	Prompt reduction in cough, ratch and expectoration. General improvement within 36 hr.
Basilar artery thrombosis	3	20	10	14	Patients improved. No conclusive evidence of trypsin effect.
Cerebral thrombosis	9	20	10	14	Same as above.
Popliteal embolus	5	10	50	5	No improvement.
Saddle embolus of aorta	2	10	50	2	No effect. Both patients died 48 hr after seen.
Massive thrombosis varices of anterior abdominal wall	2	15	15	15	Complete disappearance of thrombi 4 weeks after termination of treatment.
Diabetic carbuncle	4	10	15	15	In each instance mass was softened and ready for incision and drainage within 48 hr.
Ischemic purulent leg					
Ulcers	18	20	10	20	
Diabetic gangrene of toe	19	20	10	15	Good clinical response only in those cases presenting an acute inflammatory component.
Diabetic ulcer of leg	31	20	10	15	
Postoperative thrombophlebitis	12	10	10	7	Disappearance of acute inflammatory component in 48 hr.
Post thrombophlebitis syndrome	8	15	10	15	
Chronic thrombophlebitis	4	20	10	20	Reduction of edema after 4-6 treatments.
Phlebotrombosis	10	20	25	14	
Tuberculous adenitis	5	10	50	7	Disappearance of acute signs. Spontaneous rupture of abscess.
Acute meningococcalitis	3	14	10	10	Dramatic drop in temperature within 48 hr, marked clinical improvement.
Influenza	7	14	10	10	
Cystic fibrosis of the pancreas	2	7	10	7	Marked thinning of bronchial secretions. One patient treated in terminal stage died. Autopsy confirmed thinning of secretions.
Acute bronchitis	18	7	10	5	Drop in temperature within 48 hr.
Chronic bronchitis	7	12	10	12	
Chronic bronchiectasis	12	15	10	25	Thinning of mucous secretions eased symptoms.
Scleroderma	2	20	10	20	Initial marked improvement of skin tension relapse after 4 weeks.
Boeck's sarcoid	1	20	10	20	No effect.
Empyema	5	15	15	15	Drop in temperature after 48-72 hr, thinning of the exudate, easy drainage.
Lung abscess	3	15	15	15	
Infected bronchopleural fistula	7	15	25	15	Amelioration of symptoms, thinning of mucus.
Bronchial asthma	17	15	10	20	
Atopic dermatitis	7	8	10	8	
Pustular eczema	3	8	10	8	
Acute eczematoid dermatitis	5	8	10	6	Subsidence of the signs and symptoms of acute inflammation in 24-48 hr.
Herpes zoster	4	8	10	8	
Dühring's disease	2	8	10	6	
Neurodermatitis	3	8	10	3	
Acute sinusitis	14	5	10	3	Subsidence of acute signs in 48 hr.
Chronic sinusitis	5	5	10	3	
Peritonsillar abscess	3	5	10	3	Softening of swelling and drop in temperature in 24-48 hr.
Thrombosis of central retinal artery	3	10	15	8	No effect.
Thrombosis of central retinal vein	12	10	15	8	Subsidence of retinal edema in 24-48 hr.
Acute iridocyclitis	5	10	10	8	Dramatic improvement within 3-5 days.
Glaucoma	3	10	10	10	Improvement of symptoms in 3-5 days. Recurrence occurred in each case ameliorated by follow up treatment.
Lymphogranuloma venereum	3	4	10	4	Subsidence of mass, fever and pain.
Acute gonorrheal urethritis	3	10	10	8	Subsidence of acute signs in 24-48 hr.
Proteus vulgaris infection of urinary tract	7	10	10	8	Urine cultures became sterile.
Acute hemorrhagic cystitis	2	10	10	8	Recurrence in 4 cases of Proteus vulgaris infection which cleared after repeat treatment.
Infected pilonidal abscess	5	10	25	8	Subsidence of acute inflammatory signs in 48-72 hr.
Acute proctitis	2	10	10	10	
Acute ulcerative colitis	3	14	10	14	Drop in temperature in 72 hr. Reduction of bowel movements to 2 formed stools daily.

extensive changes had occurred and in whom there was a pronounced degree of limitation of activity. The duration of the acute phase of the illness varied from 8 to 72 hours. In order to detect excess blood trypsin levels,

LABORATORY RESULTS

Some of the laboratory results are summarized in the table. A decrease in prothrombin to 86% of normal as determined by the Quick method, in which the normal

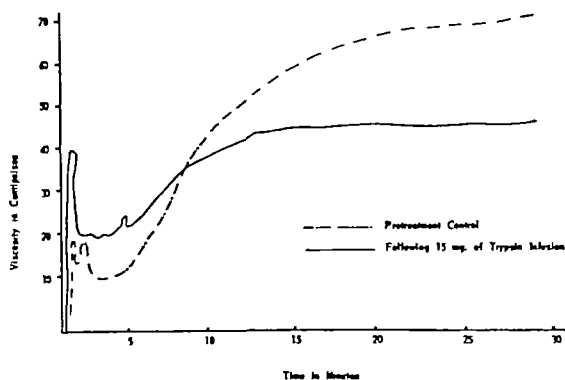
value is 12 to 14 seconds, was observed after the administration of 100 mg of trypsin. Except for a moderate increase in prothrombin time, none of the factors measured showed a marked deviation from the normal level in the dose range of trypsin employed, i.e., doses up to 400 mg. With the Greenberg method, the fibrinogen levels in the controls dropped from 350 mg to 330 mg per 100 cc with the 400 mg trypsin dose. No changes whatever occurred in the fibrinogen level when trypsin was given in doses up to 350 mg. As measured by the Innerfield, Angrist, and Benjamin method, the antithrombin titer was 25 seconds after a five minute incubation period. This compared with 25 seconds at the 400 mg trypsin dose level. Thus the antithrombin titer was not altered during the administration of the aforementioned trypsin dose. The normal level of factor 5 as measured by the Stefanini method, was 750 units. It was determined that there was a very slight but steady decrease in factor 5 with each increment in trypsin dosage, however, 705 units at the 400 mg level compared favorably with the control level of 750 units. With the Conley, Ratnoff, and Hartmann method, fibrinolysis was determined in patients given increasing levels of a single massive infusion at the end of 48 hours at 37 C. After the 100 mg level of trypsin infusion was given, the clots of the patients showed fibrinolysis, whereas some samples presented fibrinolysis after the administration of 300 mg and 400 mg. There was a slight but steady prolongation of the coagulation time from a five minute pretreatment level to eight minutes at the 400 mg trypsin level, as determined by the Lee and White method. Patients given trypsin intravenously showed a drop in blood clot viscosity ranging from 10 to 30 centipoises as measured by the "ultra-viscoson" method (see figure). The maximal depression in blood clotting viscosities was obtained when doses exceeding 100 mg per infusion were given. No agglutination occurred when in vivo trypsin-treated red blood cells were added to the serum of patients having the same blood group, and no increased agglutination occurred when anti-Rh serum was added to such cells. The same lack of response occurred when trypsin-treated serum was added to red blood cells of the same group. Thus, the erythrocytes of those patients who received trypsin behaved in a normal fashion, indicating that the red blood cells are not affected by antigenicity. The laboratory evidence is in accord with our clinical observations. Blood from trypsin-treated patients gave a negative Coombs' test reaction. No changes were noted either in the erythrocyte count or in the erythrocytes in the stained blood smears when taken prior to and following administration of trypsin.

CLINICAL RESULTS

Control Patients—Patients with arteriosclerotic heart disease, hypertensive vascular disease, hypertrophy of the prostate, and diabetes mellitus comprised a control group. In this manner we established a base line in alterations in certain fundamental physiological aspects of the coagulation mechanism, we ascertained the nature and incidence of side-effects at various dose levels and determined the optimal rate of administration and enzyme concentration. With the exception of a sense of well-being that usually appeared during the first infusion,

the administration of trypsin to these patients had no influence on the underlying illness or on factors comprising the clotting mechanism.

Patients with Acute Inflammatory Reactions—The clinical results are summarized in the table 1. Ischemic Leg Ulcers. Critical appraisal of any therapeutic agent given to patients with ischemic leg ulcers is difficult because of variable factors such as nutritional status, extent of arteriosclerotic involvement, duration and extent of the ulcerated area, degree of gangrenous change, and the presence of associated disease. In most instances, however, it was obvious that subsidence of the accompanying acute inflammatory reaction occurred following completion of the first few trypsin infusions. Liquefaction of exudates frequently followed the first infusion and was almost invariably present after subsequent infusions. During therapy eschars usually dropped off spontaneously or were readily removed revealing underlying areas of healthy granulation tissue. 2. Diabetic Gangrene. Considerable improvement in the inflammatory component followed the intravenous administration of trypsin to patients with diabetic gangrene of the feet. It is significant that the patients who responded well to trypsin



Comparison of 'ultra viscoson' curves before and after trypsin infusion.

therapy did not have extensive gangrenous involvement, although in each instance the accompanying deep cellulitis was rather widespread. The patient who was considered a therapeutic failure had widely disseminated areas of wet gangrene plus superimposed infection, an important trypsin-induced result was a nonextending line of demarcation between dead and viable tissue, which facilitated surgical separation. Each of the successfully treated patients was given daily intravenous infusions for five days. In one case separation of the gangrenous eschar occurred on the third day of treatment, and in some cases eschar separation occurred on the fourth day. On the fifth day following incision and drainage of fluctuant areas, considerable thin pus gushed forth. The follow-up treatment consisted of daily topical application of 100 mg of trypsin powder with a no. 119 DeVilbiss atomizer and daily débridement of ulcerated areas. Healthy, abundant granulation tissue appeared on the 9th, 10th, and 15th days of treatment. It is critically important to treat ulcer areas with daily washings of Sorensen's phosphate buffer solution, followed by trypsin powder and mechanical removal of the loosened debris under sterile conditions. 3. Infected Diabetic Ulcers. Gratifying results, surpassed only by those seen in the postpartum thrombo-

phlebitis cases, were obtained in diabetic patients with cellulitis and ulceration of the feet or toes, but without extensive gangrene. It is interesting and probably significant that the first favorable signs elicited in the trypsin-treated thrombophlebitis and infected ulcer patients were of the same pattern. These included subsidence of edema in the involved part, restoration of healthy tissue color, improved mobility, and marked subsidence of pain.

4 Thrombosis of Central Retinal Vein Ten of the 12 patients presented dramatic and prompt improvement as noted by restoration of vision, daily improvement in visual fields, blood coursing through the retinal vessels on exerting orbital pressure, subsidence of retinal edematous changes, and diminution in size of retinal exudates. Two patients who did not respond had pathological involvement of the longest duration, i.e., exceeding two months. Ten patients received 10 mg of trypsin intravenously for three to seven days, while two successfully treated patients received trypsin intramuscularly. It is interesting to note that one of these patients had hypertensive vascular disease with a blood pressure of 240/160 mm Hg.

5 Thrombophlebitis These patients showed remarkable improvement. In fact the most striking and prompt results in the entire study were observed in patients with postpartum thrombophlebitis. In each instance subsidence of pain, edema, local heat, fever, leukocytosis, and Homans' sign, and a fall in sedimentation rate occurred within the first few hours after trypsin treatment. The dosage consisted of 10 mg of trypsin per infusion twice daily for one to eight days. The minimal total quantity of infused trypsin associated with clinical improvement was 30 mg, the maximum quantity of infused trypsin associated with unequivocal improvement was 220 mg. Patients in this study with post-thrombophlebitis syndrome benefited from complete courses of intravenously administered trypsin in that their chief disabling symptom, persistent edema of the involved extremity, improved considerably. In no instance did the edema disappear entirely. Nevertheless, the degree of improvement was sufficient to permit each patient to return to full-time employment. In three patients who were treated for thrombophlebitis associated with cancer of the pancreas (two) and prostate (one) thrombophlebitis of the uninvolved leg developed before completing successful treatment of the original phlebitis. Following further treatment the second thrombophlebitis cleared.

6 Thromboangiitis Obliterans Patients with longstanding thromboangiitis obliterans received complete courses of intravenously administered trypsin. While no objective signs of improvement were observed, each patient stated that while under treatment there was lessening of rest pain and intermittent claudication. These symptoms recurred within four weeks of terminating therapy but were again relieved by biweekly injection of trypsin.

7 Coronary Occlusion Three of the patients were considered to have recovered from recent myocardial infarctions prior to trypsin therapy except for frequent episodes of substernal discomfort. No untoward signs developed during the course of treatment or throughout subsequent periods, and anginal attacks occurred less frequently and were milder. In addition the patients'

entire mental outlook became more cheerful. Three patients with more recent coronary occlusions were treated within 24 hours of the onset of acute symptoms. Each patient made an uneventful recovery. The evolution of the disease pattern in these few patients was characterized by clinical, laboratory, and electrocardiographic improvement. In these patients the intramuscular route of administration is preferred.

8 Acute Rheumatoid Arthritis Following the first few intravenous infusions striking improvements were noted, including diminution of pain, decrease in swelling, increase in mobility of joints and functional capacity, and a marked sense of well-being. Where there had been extensive damage to the bones, residual deformities were unaffected. In two cases acute symptoms recurred four and six days, respectively, after treatment was completed. None of the other patients had a relapse. A maximal degree of over-all improvement occurred within 24 to 72 hours after therapy was started. Three patients required from 48 to 72 hours to show maximal improvement, and these were in the oldest age group, 52 to 64. The remaining 15 patients were less than 50 years old, and each showed maximal improvement within 48 hours of commencing treatment. The patient requiring the longest time to show improvement, 72 hours, was the oldest in the series (64 years), had his disease the longest (20 years), and had the lowest red blood cell count (2,900,000 per cubic millimeter of blood). Although treatment was continued for five more consecutive days in most instances, there was no correlation between the duration of treatment or total dosage and the ultimate degree of improvement. No toxic side-effects followed the use of intravenously administered trypsin in this study. Occasionally, mild symptoms of frequency in urination, slight epigastric pain, or slight throbbing headaches were elicited over a short period of time. It is evident from the laboratory and clinical results that decided and prompt improvement followed the intravenous administration of trypsin to patients with acute rheumatoid arthritis. While, generally speaking, the natural course of rheumatoid arthritis makes the evaluation of therapeutic agents for this condition exceedingly difficult, spontaneous improvement is usually a gradual phenomenon. The quick remission consistently affected by intravenously administered trypsin would seem to exclude the possibility of spontaneous variation.

SIDE-EFFECTS

The 538 patients studied in this series received a total of 6,456 trypsin infusions. When the drug is given slowly, the only side-effect is transient facial flushing and a sense of warmth, occurring in 12% of the patients treated and lasting for an average of two to three minutes. A direct relationship exists between the quantity of trypsin injected and the incidence and severity of reactions. Single infusions of more than 400 mg of trypsin were associated with a high incidence of side-effects, which, as a general rule, were mild and transitory. Significantly, the 10 to 15 mg level of individual trypsin infusions was clinically effective and presented negligible side-effects. During earlier stages of this investigation when considerably higher doses were employed mainly in a 50 to 250 mg range, endophlebitis frequently oc-

curred at the site of infusion. The incidence of this side-effect has been reduced considerably since smaller trypsin doses have been used in the 10 to 15 mg range per infusion. It is interesting that decreased prothrombin inhibitor levels were present in the few diabetic patients in whom local phlebitis developed, despite smaller dose levels. In more than 98% of the patients receiving trypsin intravenously in the small dose range, however, local phlebitis never developed. This group manifested prolonged prothrombin inhibitor levels. In these studies we did not employ anticoagulants in order to exclude therapeutic variables. Since making this report, however, we have occasionally employed anticoagulants together with intravenously administered trypsin in thrombotic patients, the dose of trypsin did not alter the prothrombin level.

REPORT OF CASES

CASE 1—A 53 year-old white laborer entered Metropolitan Hospital, Welfare Island, with 8 by 14 cm and 6 by 12 cm infected ulcers on both legs that had been treated with periods of bed rest, at least four to six weeks, plus extensive local and systemic therapy, the ulcers were sufficiently changed for a few days to permit limited ambulation. An infusion containing 10 mg of trypsin in 100 cc of sodium chloride solution was given after the patient had been confined to bed for 12 days, at which time there was essentially no change in the infected ulcers since last seen at the hospital seven months previously. Two infusions, each containing 10 mg of trypsin, were given daily for the following four days without the development of untoward reactions. On the third day of the treatment the patient stated his legs felt "warmer and much better," and objective evidence of improvement such as absence of purulent exudate and appearance of granulation tissue was evident on the fourth and fifth days. On the sixth day after institution of therapy the patient became ambulatory. When seen in the clinic four weeks later the ulcer on the right leg had remained healed and a smaller ulcer had appeared on the left leg. The latter was treated successfully with trypsin powder applied locally. Except for a slight recurrence of pain in the area of the small ulcer, the patient was greatly improved.

CASE 2—A 49 year-old Jewish widow with known hypertension for many years was admitted to the hospital with blurring vision, which had occurred on awakening three weeks previously. This had been diagnosed by an ophthalmologist as thrombosis of the central vein of the retina. No visual improvement was noted prior to admission, and another ophthalmologist confirmed the diagnosis and visualized a thrombus in the superior temporal vein. Arterial but no venous pulsations were observed. The patient received 10 mg of trypsin on May 16, 10 mg divided equally in two doses on May 17, 10 mg on May 19, and 10 mg on May 21. Following the administration of the first 10 mg of trypsin, vision was considerably improved and fundal examination revealed a return of the venous pulsation and blood flow. On admission finger counting was at 15 ft, whereas on discharge the vision was 18/100.

CASE 3—A 21-year-old Puerto Rican housewife entered the hospital because of pain and marked tenderness of the right lower extremity of three weeks' duration. She was unable to walk because of pain and had been confined to bed continuously for the past two weeks. Four weeks prior to admission she delivered a healthy child following an uneventful gestation. One week post partum, the patient experienced pain in the right calf region associated with moderate swelling extending to the thigh. Physical examination revealed tenderness and 2+ edema of the entire right lower extremity. The right leg was much warmer than the left. The diagnosis was acute post-partum thrombophlebitis, and a course of intravenously administered trypsin was recommended. On the second day of treatment, and after having received four doses of 10 mg of trypsin each, there was considerable subjective and objective improvement. Following an additional four infusions of 10 mg each (eight infusions in four days), the patient was entirely symptom free and the signs of thrombophlebitis had completely cleared.

CASE 4—A 58 year old white man was admitted to the Metropolitan Hospital because of painful swelling of the lower third of the right leg for the preceding three weeks, in addition he had polyuria, polydipsia, and weight loss of 41 lb (18.6 kg) over the past month. Physical examination of the right leg revealed redness, swelling, and tenderness over the lower third, measuring 10 by 14 cm. Immediately superior to this erythematous zone a deeply situated, exquisitely tender cord like structure was palpable. The diagnosis was thrombophlebitis, with a localized area of erythema. Treatment consisted of continuous bed rest plus a full course of trypsin administered intravenously. On March 13, five days after admission, two infusions of trypsin solution were given, each containing 10 mg in 100 cc of isotonic sodium chloride solution. This dose and frequency of daily administration were repeated on the following three days. At no time were reactions noted. On March 14, the discolored area became considerably lighter and less extensive and the cord like structure was smaller and less tender. On the following day the patient stated that he felt better and wished to get out of bed, the area of discoloration on the right leg had become much smaller and lighter, and the cord like structure had decreased in size and was less painful. On March 16, because of further subjective and objective improvement, he was permitted out of bed for the first time in almost a month. At this stage, after administration of eight infusions of trypsin over four days, therapy was discontinued. On March 20, there was no evidence of thrombophlebitis in the right leg and a follow up examination made six weeks later revealed no recurrence of symptoms.

CASE 5—A 30 year-old Puerto Rican housewife entered the hospital unable to walk owing to severe pain and tenderness over the lower medial aspect of the left thigh for the preceding three weeks. Examination revealed an irregular, crescentic, stony, hard, hot, tender mass on the inner aspect of the lower third of the left thigh. The surrounding skin was lichenose and erythematous. A diagnosis of thrombophlebitis was made, and after five days of bed rest plus anticoagulants without improvement a course of intravenously administered trypsin was recommended. On the first day of therapy two infusions of trypsin, each containing 250 mg, there was less pain in the thrombosed area, the mass was smaller and less tender, the overlying skin was less shiny and erythematous. The following day two infusions were given, each containing 250 mg, without producing unusual reactions despite the high dosage. This patient was treated early in the investigation when the usual single dose was 250 mg. On the third day the patient accepted the first 250 mg but refused the second because she felt "cured" and accordingly signed a hospital release. A follow-up examination made at her home three days later revealed marked regression in the size of the thrombus as compared with the size on admission as well as practically complete clearance of the overlying erythema. The patient has been able to conduct her household duties uninterruptedly since returning home.

CASE 6—A 37 year-old Puerto Rican woman was admitted to the Metropolitan Hospital because of massive, bilateral serpiginous like masses on the medial aspect of both thighs. There was a three month history of painful swelling over the inner side of the left thigh, with onset one week before of a similar, but somewhat smaller, painful swollen, sausage-shaped mass along the inner side of the right thigh. Examination revealed an extremely tender, red, indurated area over the medial portion of the left mid thigh, measuring 22 by 11.5 cm. Coursing through the center of the erythematous zone was a markedly dilated, firm, hard thrombotic vessel. A smaller mass was present on the medial side of the right thigh. A diagnosis was made of bilateral thrombophlebitis of both thighs. Treatment consisted of bed rest and a course of intravenously administered trypsin. On March 7, six days after admission to the hospital, 10 mg of trypsin dissolved in 100 cc of isotonic sodium chloride solution was given intravenously. At the conclusion of the infusion a slight chill occurred. On the following day there was less pain and redness of the left thigh and the right thigh remained painful and tender. Two 10 mg trypsin infusions were then given and repeated on the following three days, March 9, 10, and 11, without the development of untoward reactions. On March 9 her condition was about the same, however on

March 10 there was considerable decrease in the size and associated tenderness of the masses on both thighs and the area surrounding the erythema was much lighter and less extensive. On March 16 the patient was discharged considerably improved and ambulatory. At the follow-up examination, two weeks later, fluctuant tender masses were palpable over the inner sides of both thighs. Following incision and drainage, considerable sterile pus was evacuated from each area. At her visit to the clinic two weeks later both thighs appeared normal.

CASE 7—A 42-year-old white truck driver was admitted to Nyack Hospital, Nyack, N. Y., complaining of severe, crushing, substernal and precordial pain of several hours' duration. On admission the temperature was 99.6 C, pulse rate 130, respirations 40, blood pressure 100/70 mm Hg, white blood cell count 17,100 per cubic millimeter of blood, and sedimentation rate 40. The lungs were clear, the point of maximal impulse in the sixth intercostal space at the anterior axillary line, the heart sounds somewhat distant but of regular rhythm, and no thrills palpable. The liver was slightly enlarged, and the extremities were normal. The electrocardiogram showed recent myocardial infarction, anteroapical type. Treatment consisted of seven trypsin gluteal intramuscular injections, each containing 5 mg of the enzyme, plus sedation. After the first treatment on the day of admission the substernal and precordial pain subsided considerably, and only minor complaints of pain were noted throughout the remaining period of hospitalization. Serial electrocardiograms showed the usual subsiding pattern of myocardial infarction, and the sedimentation rate became normal on the fifth hospital day. Bed rest was maintained for three weeks.

CASE 8—A 33-year-old woman had moderately severe rheumatoid arthritis for 24 months, affecting principally the knees, feet, ankles, wrists, and hands. Over a period of years treatment was unsuccessful and had consisted of physical therapy, blood transfusions, gold therapy, typhoid vaccine, and corticotropin (ACTH). Three days prior to admission her left knee became swollen. After three daily intravenous infusions of trypsin, each dose consisting of 10 mg in 100 cc of isotonic sodium chloride solution, the signs and symptoms of acute inflammation involving the left knee had subsided completely. In addition, there was, in general, less pain and stiffness in the other joints less acutely involved at the time. The range of motion of the fingers and wrists was increased considerably. This improvement had been maintained for the preceding two months.

CASE 9—A 62-year-old white schoolteacher visited the office of one of us (I. I.) with the complaint of massive thrombi that had been present on the anterior abdominal wall for the preceding eight years. The patient stated that eight years previously, following an abdominal operation, thrombophlebitis developed with extensive and severe involvement of the left lower extremity. As a direct result of this phlebitis (probably extending into the vena cava, according to the family physician) numerous dilated venous channels appeared on the lower anterior abdominal wall. Six months after these venules were first apparent they became confluent and remained thrombotic ever since. The diagnosis at the time of instituting intravenous administration of trypsin eight years later were post-phlebitis syndrome in the left lower extremity and extensive phlebothrombosis of the anterior wall of the abdomen. Treatment involved 10 daily trypsin infusions consisting of 10 mg in 100 cc of sodium chloride solution. The patient remained ambulatory throughout treatment. At the end of this course there was subsidence of edema of the left lower extremity. The confluent masses of thrombi on the anterior abdominal wall were still present, but appeared definitely

smaller, more irregular, and softer. The patient returned for a follow-up examination four weeks later, at which time there was no longer any evidence of thrombosis of the anterior abdominal veins. During a six months follow up period the thrombi did not recur. Moderate edema of the left lower extremity has persisted.

DOSAGE AND INDICATIONS FOR TRYPSIN

In animal experiments, we have demonstrated that excessive blood trypsin levels can effectively destroy the clotting mechanism.³ This varies with the individual animal as well as with the dosage. For purposes of clinical control, therefore, it is advantageous to check midway through each infusion for excess blood trypsin levels during the infusion. Two methods have been devised by us for determining the extent to which blood trypsin is present in excess quantities. The plasma antithrombin level is perhaps more closely linked with blood trypsin content than any other circulating antitryptic substance.⁴ Moreover, since antithrombin is an unusually stable protein we have noted that decreasing antithrombin levels following intravenous administration of trypsin means concomitant proteolysis of other and less stable clotting moieties, including factor 5 and prothrombin.⁵ The imminence or actual presence of peptone shock is apparently linked with the stage of extensive proteolysis of clotting moieties. Thus, maintenance of normal antithrombin levels is of critical importance. It should be stressed that our purpose was to lyse the fibrin content of thrombi without unduly compromising the coagulating mechanism. Citrated blood samples were obtained during the course of trypsin treatments for immediate "five minute incubation" antithrombin determinations. In this manner trypsin infusions became subject to careful and continuous control. It is gratifying to mention that none of the patients reported on in this series, including the few who earlier in our studies received as much as 750 mg in a single infusion, demonstrated diminution in antithrombin titer. In dogs diminution in antithrombin was observed when larger doses of trypsin were employed. This significant observation is correlated with the fact that, despite clinically effective fibrinolysis, the coagulation mechanism in humans remains essentially intact following intravenous administration of trypsin in the prescribed dosage range and rate of administration.

The second laboratory method utilized routinely as a method for estimating the extent of proteolysis induced by trypsin is a test that we refer to as the "prothrombin inhibitor determination." In brief, the procedure involves the following steps: Introduction of 2.5 cc of isotonic sodium chloride into a vial containing 10 mg of crystalline trypsin.^{6a} Withdrawal of 0.024 cc of this trypsin solution with a tuberculin syringe, and adding it to 0.3 cc of the patient's plasma. Determination by means of a stop watch and a wire loop the length of time for a fibrin strand to first appear. At 37 C (water bath) the average length of clotting time ranges from 25 to 30 seconds. A normal control determination with normal plasma is run simultaneously. It has been our observation that a patient undergoing trypsin therapy shows prolongation of the "prothrombin inhibitor time." If at any time this test reveals marked diminution in the prothrombin inhibitor time trypsin should be discontinued at once. All patients have prothrombin inhibitor time

3 Innerfield I, Angrist A and Benjamin J W. Studies on Trypsin I. The Anticoagulant Action of Trypsin. *Gastroenterology* 20: 630-635 (April) 1952.

4 Innerfield I, Angrist A and Benjamin J. Plasma Antithrombin Patterns in Pancreatic Disturbances. *Gastroenterology* 20: 417-429 (Dec) 1951.

5 Innerfield, I, Angrist A and Boyd L. J. Plasma Antithrombin Titer in Incipient and Advanced Liver Failure. *Gastroenterology* 20: 417-429 (March) 1952.

6a The National Drug Company Philadelphia has prepared a special 10 mg trypsin vial for performing this test.

determinations prior to institution of trypsin therapy. Trypsin therapy contraindicated in patients with markedly decreased prothrombin inhibitor time prior to trypsin therapy.

The primary purposes of intravenous trypsin therapy are (1) to depolymerize long-chained protein molecules, i.e., hydrolysis of the fibrin molecule, (2) to decrease the viscosity of encapsulated fluid, (3) to augment phagocytosis, (4) to enhance the biochemical process of liquefaction of purulent debris and inspissated thick viscid mucus, and (5) to cause reversal of acute inflammatory processes. It is important to note that decreased blood clot viscosity, fibrinolysis, and effective lysis of intravascular thrombi followed intravenous administration of trypsin when done in the previously outlined fashion, without otherwise jeopardizing the coagulation system, clinically, the cardinal indication for trypsin is acute inflammation, regardless of etiology.

Thus far, contraindications to intravenously administered trypsin appear to include hepatic insufficiency, congestive heart failure, cachexia, hemorrhagic states, and conditions associated with necrosis of vital tissues and severe anoxia, such as in advanced pulmonary emphysema and pulmonary fibrosis. Markedly depressed prothrombin inhibitor levels are considered an absolute contraindication.

EFFECTS

Infiltration of the infusion into healthy tissue did not produce necrosis or sloughing owing to the adequacy of antitryptic substances present in all living cells. There does occur, however, a short painful sensation in the region of the infiltration. Sloughing of healthy tissue is produced by alpha, beta, and gamma chymotrypsin and not by trypsin. Sensitization phenomena following intravenous administration of trypsin have not been observed in this study. It is well recognized that proteins of low molecular weight, like trypsin, seldom produce sensitization phenomena, however, when intervals exceeding three weeks occur between intravenous courses of trypsin. Intradermal and conjunctival tests should be made prior to the reinstitution of therapy. Although no evidence of sensitivity reactions has been encountered in the follow-up clinical cases, it is recommended that under no circumstances should a second course of intravenously administered trypsin be given without testing for evidence of hypersensitivity.

The effect of increasing dose levels of intravenously administered trypsin on certain clotting constituents in dogs has been reported by us.¹ Continuation of this study with both rabbits and dogs has provided additional data and insight into the physiological effects of intravenously administered trypsin on the coagulation mechanism and has enabled us to develop a method for safely administering trypsin intravenously in man. Previous workers reported that trypsin was too toxic for intravenous use,⁶ produced shock, necrosis and sloughing of tissue sensitivity reactions,⁷ and intravascular coagulation.⁸ It is possible, indeed probable, that the particular trypsin employed by these workers in 1942, 1944, and 1945 was far different from the highly purified crystalline product used in our experiments. The slightest contamination of trypsin with chymotrypsin or carboxypeptidase can

produce serious side-effects following intravenous administration.

Intravascular coagulation following the intravenous administration of purified trypsin has not been observed by us during animal and human studies. Large doses of such trypsin have powerful anticoagulant effects.² Shock, death, and small intracardiac thrombi have been observed to follow massive, rapid intravenous administration of trypsin in rabbits, but shock did not occur and intracardiac thrombi were not seen when the enzyme concentration and the rate of administration were within specific prescribed limits.^{1a} In order to appraise the anticoagulant and fibrinolytic effects of trypsin it should be stated that the clotting mechanism is merely one part of a more comprehensive "coagulation system." Under normal physiological circumstances the absence of intravascular clotting reflects the adequacy of circulating clot inhibitors. The fluid state of the blood stream is maintained through the participation of these clot inhibitors and other naturally occurring anticoagulants, comprising a highly effective over-all plasma proteolytic enzyme system. Yet, small doses of trypsin in vitro produce clots. The following hypothesis is applicable to the explanation of the differing action of in vivo and in vitro trypsin. As in all dynamic biological processes, moieties comprising the coagulation system are constantly being degraded and synthesized in vivo. Moieties consumed in in vitro clotting, or following in vitro proteolysis, obviously cannot be resynthesized. When trypsin in small doses produced clots in vitro, it does so by digesting the prothrombin inhibitor grouping, i.e., digestion of the inhibitor molecular grouping from the prothrombin molecule enables prothrombin to convert into thrombin autocatalytically. This suggests that prothrombin molecules are less susceptible to small doses of trypsin than prothrombin inhibitor groupings. It is further suggested that the prothrombin inhibitor molecule complex has a protein configuration and is not too long-chained, since it is so readily attacked by trypsin in small doses. Experimental evidence confirms this observation. If this were not so, that is, if prothrombin were not "coated" by a "precursor molecular grouping" small in vitro doses of trypsin would attack prothrombin at once. An excess of in vitro trypsin proteolyzes not only the prothrombin molecular inhibitors but also prothrombin itself, factor 5, and fibrinogen. Thus excess in vitro trypsin destroys all clotting substances. In vivo clotting cannot occur following small doses of trypsin, however, provided the synthesis and replacement rate of digested clot inhibitor groupings exceed the rate and extent to which these moieties are proteolyzed. The plasma proteolytic enzyme system, plasmin, antithrombin, antirennin, and chymotrypsin inhibitor substances, further vitates possible intravascular clotting effects of intravenously administered trypsin within specific limits of trypsin concentra-

6 Tagnon H J. Effect of Intravenous Injection of Trypsin on the Blood Coagulation Time in Hemophilia. *Proc Soc Exper Biol & Med* 57: 45-47 (Oct) 1944.

7 Rocha e Silva M. The Histamine Theory of Anaphylactic Shock with Special Reference to Anaphylaxis in Rabbit. *Arch Path* 33: 387-408 (March) 1942.

8 Tagnon H J. The Nature of the Mechanism of Shock Produced by Injection of Trypsin and Thrombin. *J Clin Investigation* 24: 110 (Jan) 1945.

tion and rate of administration. Large doses of intravenously administered trypsin digest both clotting and anticlotting protein moieties of the coagulation system.^{1a} Thus, under normal conditions, maintenance of a fluid circulation following the parenteral administration of small doses of trypsin reflects the capacity of the liver to regenerate clot inhibitor moieties either faster or just as fast as they are proteolyzed. If the dose of trypsin is steadily increased (continuous infusion), it is apparent that a level of enzyme concentration will be reached that exceeds the capacity to elaborate essential clotting moieties at a rate equal to that of proteolysis. It is precisely during this excessive enzyme dose range, as given to animals,^{1a} that anticoagulant, fibrinogenolytic, and fibrinolytic effects of intravenously administered trypsin become apparent. It may well be that the relative size of the molecules of these coagulant and inhibitor moieties determines their selective action to trypsin. The simpler, shorter inhibitor molecules are readily formed by the liver and are rapidly replaced following degradation.

The activation of a blood proteolytic enzyme system by trypsin requires far smaller quantities of trypsin and recently has been reported by three groups working independently.⁹ Clinical observations reported in this paper support and extend those views, namely that trypsin converts plasminogen into active plasmin. Trypsin in solution is known to deteriorate rapidly, losing 40 to 50% of its activity in the first three hours, yet for weeks after cessation of trypsin therapy routine blood findings indicate increased fibrinolysis and increased prothrombin inhibitor levels. Clinically, as for example, in the patient cited with varices of the abdominal wall, therapy with trypsin resulted in maximal alteration and eventual disappearance of massive thrombosis, however, the thrombolysis occurred several weeks after trypsin therapy had been terminated. Similarly, patients with postphlebitis syndrome or chronic thrombophlebitis of long duration often manifest subsidence of edema many weeks after cessation of the treatment. Since it is inconceivable that the minute doses of trypsin used per se could maintain activity for several weeks, the immediate trypsin activation of naturally occurring proteolytic enzymes, such as the conversion of plasminogen to plasmin, is postulated. Once activated, these proteolytic enzymes continue functioning for several weeks. It is entirely possible that clinical effects are due to activation of the proteolytic enzyme system, not trypsin at all.

COMMENT

The prompt and striking improvement observed in patients with ischemic purulent leg ulcers strengthens the view that parenterally administered trypsin significantly

alters the inflammatory reaction. Similarly, signs and symptoms of cellulitis accompanying acute thrombophlebitis subsided promptly after administration of trypsin. Striking improvement also followed administration of trypsin in patients with retinal thrombosis. It is significant that in the patients who did not respond favorably retinal artery thrombosis had developed two months prior to institution of treatment. The patients who responded to treatment had venous thrombotic episodes two or three weeks before treatment was started. The 71 patients with thrombophlebitis, responding favorably to trypsin, showed diminution in size, shape and consistency of superficial thrombi in situ within 24 to 48 hours after commencing treatment. Thrombi were seldom observed or palpated two weeks after cessation of therapy. The extent to which this thrombolytic effect was related to trypsin per se, however, cannot be determined on the basis of observations presented in this paper. It is highly significant that the subsidence of edema, with trypsin administration, reduced mechanical obstruction of vascular channels, improved collateral circulation, and restored lymphatic drainage, thereby facilitating naturally occurring proteolytic and thrombolytic mechanisms. An enhanced proteolytic enzyme and thrombus substrate interrelation resulting in augmented thrombolysis is strongly suggested. It is noteworthy that in none of the thrombophlebitis patients treated with trypsin did pulmonary emboli develop during a follow-up of several months.

Since electrocardiographic and histological examination of rabbit and dog hearts following intravenous therapy with trypsin were negative and since side-effects were negligible, the drug was administered to patients with recent myocardial infarctions. It is significant that no untoward sign developed during the infusions or periods of observation. Since an important pathophysiological component contributing to extension of myocardial lesions is intracellular and extracellular edema, it is conceivable that trypsin-induced lysis of intracapillary and lymphatic thrombi may contribute toward reversing the accumulation of interstitial myocardial fluid, facilitating capillary blood flow, and hastening repair of the damaged myocardium. The reduction in the intracellular and extracellular myocardial edema may be decisive in preventing further occlusion of minute coronary vessels by eliminating the factor of mechanical compression. In spite of the definite improvement noted in the convalescent and acutely diseased coronary patients, further evaluation of parenterally administered trypsin must await a much larger series of patients and the results of extensive animal experiments now in progress.

Impressive results were obtained in 15 patients with acute rheumatoid arthritis and in 3 with acute rheumatic carditis.^{10a} The ideal antirheumatic agent should consistently affect fundamental systemic and tissue alterations of the disease. The brilliant investigations of Stetson¹⁰ correlate morphological changes of the rheumatic state, such as necrotizing arteriolar changes, hemorrhagic necrosis, pancarditis, and changes in interstitial fluid compartments, with the development of capillary thrombi

9 Lewis J H and Ferguson J H. Studies on a Proteolytic Enzyme System of the Blood V. Activation of Prothrombin by Trypsin. *Am. J. Physiol.* 170: 636-641 (Sept.) 1952. Ko-holaty W, Ellis W W and Jensen H F. Report No. 68. Army Medical Research Laboratory Fort Knox, Ky. 1951. Innerfield.^{1a}

9a An intensive study of the effects of parenterally administered trypsin on the manifestations of acute rheumatic fever is now in progress under the supervision of Dr Lawrence J. Slobody, professor of pediatrics and Dr Leonard I. Luhby, assistant professor of pediatrics, New York Medical College.

10 Stetson C A. Studies on the Mechanism of the Schwartzman Phenomenon. Certain Factors Involved in the Production of the Local Hemorrhagic Necrosis. *J. Exper. Med.* 93: 489-504 (May) 1951.

consisting of platelet masses and sticky leukocytes. These pathophysiological changes constitute morphological alterations of the Schwartzman and Arthus type.¹⁰ It is entirely possible that the almost immediate therapeutic response of patients with acute rheumatoid arthritis and acute rheumatic carditis to trypsin is based on lysis of intracapillary and lymphatic thrombi in areas undergoing the Schwartzman or Arthus type of tissue reaction.¹¹ Therefore, parenterally administered trypsin provides the means for suppressing and reversing this type of tissue hypersensitivity reaction. In a previous investigation we have reported observations on the anticoagulant, fibrinolytic, and thrombolytic properties of intravenously administered trypsin; thus, it seems plausible to assume that intracapillary and lymphatic "plugging" in areas undergoing hemorrhagic necrosis would be lysed by the administration of trypsin. Certainly, the almost immediate subsidence of edema after institution of this therapy in patients with acute rheumatic arthritis is compatible with restitution of lymphatic drainage, improvement in local circulatory integrity, and changes in fluid electrolyte and hydrogen ion concentration.

SUMMARY AND CONCLUSIONS

There was dramatic subsidence of all signs and symptoms of acute inflammation in 94.3% of the patients studied during this investigation. It therefore appeared likely that, in a manner as yet unexplained, trypsin activated a system of naturally occurring enzymes, which participate in determining the rate at which inflammatory processes subside, thereby enabling healing to follow. Trypsin, then, alters the host reaction to injury. Studies now in progress in our laboratory indicate that this augmented host reaction to tissue injury, initiated by trypsin, embraces such factors as (1) enhanced surface and intravascular phagocytosis, (2) increased lysis of liquefied bacteria, (3) decreased viscosity of all tissue fluids, (4) lysis of intralymphatic thrombi, (5) dissolution of fibrin barriers in areas of acute inflammation, (6) liquefaction of capillary thrombi consisting of leukocytes and platelet masses, and (7) amelioration of metabolic defects in the areas of acute inflammation, i.e., elevation of hydrogen ion concentration and inhibition of anaerobic glycolysis. There then follows restoration of "metabolic continuity" with the remainder of the organism occasioned by lysis of capillary thrombi in areas of acute inflammation. The end-result is rapid suppression and reversal of the signs and symptoms of acute inflammation. It would therefore appear that, expressed simply, the rate at which proteolytically activated biochemical reactions occur determines in large measure the subsidence rate of the acute inflammatory reaction. That trypsin apparently activates this proteolytic enzyme system seems substantiated in this investigation. From a therapeutic standpoint, then, trypsin plays a significant role in catalyzing enzymatic sequences that augment the host reduction to injury.

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¹¹ Experiments now in progress indicate that trypsin suppresses the Schwartzman phenomenon in rabbits.

CLINICAL NOTES

USE OF TRYPSIN INTRAVENOUSLY IN A GUNSHOT WOUND

REPORT OF A CASE

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The use of trypsin (Enzar) intravenously in thrombophlebitis was reported in the *Bulletin of the New York Academy of Medicine* of August, 1952. The following case report is intended to encourage clinical use of trypsin intravenously in traumatic wounds and compound fractures, especially in war wounds. The case described illustrates the potentiality of this substance as regards (1) removal of debris, (2) decrease of edema, (3) removal of slough, (4) lessening of drainage, (5) decrease in exudate, (6) anticoagulant and fibrinolytic action, (7) removal of medium for bacteria, and (8) speeding up of the entire healing process.

REPORT OF CASE

A 26-year-old white man was accidentally struck by a rifle bullet in the left arm while hunting in Maine on Oct. 26, 1952. The bullet entered the lateral aspect of the upper arm and made its exit on the medial aspect, taking a piece of skin about 3 by 2 in. (8 by 5 cm.) in size with it. The humerus was split obliquely. Fortunately, no major nerve or blood vessel was severed.

An emergency hanging cast was applied in Maine on Oct. 26, 1952. On Nov. 1 the patient was admitted to the Clara Maass Memorial Hospital in Newark, N.J. On admission the wound was draining profusely, and the arm was three times its normal size. Openings at the site of the entrance and exit wounds exposed the fractured bone. The patient had been receiving penicillin and streptomycin. This therapy was continued, and traction was instituted by means of an airplane splint and a Steinmann pin (through the ulna below the olecranon), with a clevis attached to the lateral extension of the airplane splint.

There was no improvement in the edema, slough, drainage, exudate, and necrosis for several days. The patient was treated with trypsin intravenously (50,000 units in 200 cc. of isotonic sodium chloride solution given slowly, daily). He showed no outward reaction. On the third day of intravenous trypsin therapy, the edema had subsided considerably, the drainage was moderate, the necrotic tissue had become demarcated (and was removed), and the bullet holes had begun to close. On the sixth day the edema had disappeared, the wound was clean, drainage had ceased, exudate was minimal, and the edges of the wound looked fresh and healthy.

The wound progressed to complete healing, with strong callus formation at the site of union. The traction pin was removed three weeks after insertion. Six weeks from the occurrence of the compound fracture, the arm was in excellent condition, the fracture was united, and the wounds were closed. No grafting was necessary. The splint was removed, and the arm was placed in a triangular supportive bandage without a dressing.

CONCLUSIONS

The rapidity of healing in this case can be attributed to (1) the digestive action of the trypsin, (2) the proteolytic action on necrotic tissue, (3) the denial of a medium (debris and slough) to bacteria, (4) the anticoagulant action of trypsin, and (5) the opening up of

humoral channels of supply and excretion in the devitalized area. The potential proteolytic and fibrinolytic and anticoagulant properties of trypsin unquestionably need further clinical trial. Intravenous use of trypsin in one case does not present any conclusive evidence in favor of use of this enzyme as an acceptable form of treatment of wounds. The results in this case (without any adverse reaction) are of such a nature, however, as to encourage further clinical studies of the intravenous use of purified trypsin in traumatic or infected wounds.

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SEVERE PARA-AMINOSALICYLIC ACID HYPERSENSITIVITY SIMULATING MONONUCLEOSIS OR HEPATITIS

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and

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Thousands of tuberculous patients are now using *p*-aminosalicylic acid as an adjunct in the chemotherapy of their disease. The commonest side-effect noted with this drug has been gastrointestinal irritation,¹ which occurs in about 10% of the patients. A smaller number of patients exhibit fever and a skin rash² after several weeks of therapy. A severer form of hypersensitivity to *p*-aminosalicylic acid, which may simulate mononucleosis³ or hepatitis,⁴ has recently been described in the foreign literature. One of these cases was fatal.⁵

Eight patients exhibiting this severe type of hypersensitivity to *p*-aminosalicylic acid have been encountered among approximately 3,000 patients who have taken the drug in this institution over the past few years. It is most important that the condition be recognized and therapy stopped promptly, since a mistaken diagnosis of mononucleosis or hepatitis may result in continued therapy with *p*-aminosalicylic acid, followed by greater morbidity and perhaps death.

CHARACTERISTICS OF THE REACTION

In the eight cases studied the clinical and laboratory characteristics of the reaction were as follows:

Onset—The reaction began 23 to 37 days after the start of *p*-aminosalicylic acid therapy. Fever ranged from 101 to 105 F. Chills accompanied the fever in all but

one case and were severe in two cases. The complaints of headache and generalized aching were made by half of the patients. Six patients complained of nausea, and in three of these it was accompanied by emesis. Burning of the eyes and lacrimation occurred in five patients. A skin rash developed in all cases. The rash involved the face, neck, and arms in the milder cases and was generalized in the severer ones. Usually it was erythematous and macular, but in one case it was urticarial. The pruritus was fairly severe in all but one patient. Cervical lymphadenopathy was noted in five patients. Axillary lymph nodes were also palpable in one patient and inguinal nodes in another. Hepatomegaly with tenderness and splenomegaly were noted in two patients. One of these had obvious jaundice, with a bilirubin level of 4.6 mg per 100 cc.

Laboratory Studies—The most interesting finding was the presence of atypical lymphocytes varying from 1% to 21%. These lymphocytes corresponded to those described as type 1 and type 3 by Downey⁶ or as virocytes by Leibowitz.⁷ Neutropenia, left shift, toxic granulation, relative or absolute lymphocytosis, and eosinophilia (11% to 50%) were also commonly noted. Cold agglutination tests and Paul-Bunnell reactions (repeatedly performed in each patient) were consistently negative.

Alkaline phosphatase values were above normal in three of the four cases studied (13.7 units, 21.4 units, and 52.6 units). Thymol turbidity tests were above normal in three of five cases studied (5 units, 8 units, and 19 units). Bilirubin was above normal in three of five cases studied (1.9 mg, 1.4 mg, and 4.6 mg per 100 cc). The cephalin flocculation test was 3 or 4+ in the five cases studied. The sulfobromophthalein (Bromsulphalein) test was performed in three patients, one showed 5% (normal) and the other two 15% and 20% retention.

Scratch, intradermal, patch, and passive transfer tests were performed. The most useful of these was the patch test, which was frequently positive when performed by applying a 33% ointment of *p*-aminosalicylic acid in lanolin to the intact skin for 48 hours.

Clinical Course—When administration of the drug is discontinued, the fever, rash, lacrimation, and itching subside rapidly in the course of a few hours to a few days. The blood picture reverts to its previous condition in a week or two. The sulfobromophthalein test returned to normal within a month in the two patients mentioned (15% and 20% retention). Exacerbation of symptoms, reappearance of atypical lymphocytes, increase in eosinophils, and neutrophilic left shift occur promptly if the drug is readministered even in fractional doses.

COMMENT

The sudden onset of fever with adenopathy and atypical lymphocytes suggests the possibility of infectious mononucleosis. Nausea, emesis, hepatomegaly, splenomegaly, and abnormal liver function tests strongly suggest the possibility of hepatitis. While studies are being made to verify the presence or absence of these conditions, the patient may become progressively worse if *p*-aminosalicylic acid therapy is continued. It is therefore of considerable importance that the true origin of the clinical picture should be recognized early. Fever, rash,

From the Municipal Tuberculosis Sanitarium.

1 Nagley, M. M. and Logg, M. H. *Para Aminosalicilic Acid (P.A.S.) in Pulmonary Tuberculosis*. Lancet 1: 913-916 (May 28) 1949. Madigan, D. G. and others. *Para Aminosalicilic Acid in Tuberculosis: Clinical and Pharmacological Aspects*. ibid 1: 239-245 (Feb 11) 1950.

2 (a) Kierland, R. R. and Carr, D. T. *Reactions to Para Aminosalicilic Acid*. Proc Staff Meet Mayo Clin 24: 539-543 (Oct 12) 1949. (b) Warring, F. C. Jr. and Howlett, K. S. Jr. *Allergic Reactions to Para Aminosalicilic Acid: Report of 7 Cases Including 1 Case of Löffler's Syndrome*. Am. Rev. Tuberc 65: 235-249 (March) 1952.

3 Spoukes, P. *Clinical Picture Resembling Infectious Mononucleosis Caused by Para Aminosalicilic Acid*. Nederl. tijdschr. geneesk 3: 2001-2006 (Aug 16) 1952. Randolph, T. G. and Gibson, E. B. *Blood Studies in Allergy: Presence in Allergic Disease of Atypical Lymphocytes and Symptoms Suggesting the Recovery Phase of Infectious Mononucleosis*. Am. J. M. Sc 207: 638-643 (May) 1944.

4 Cutbert, J. *Acquired Idiosyncrasy to Sodium p-Aminosalicylate*. Lancet 2: 209-211 (Aug 5) 1950. Kendrick, G. D. W. *Toxic Hepatitis from Para Aminosalicilic Acid*. ibid 2: 668-669 (Oct 13) 1951. Steel, S. J. *Acquired Sensitivity to Para Aminosalicilic Acid*. Brit. M. J 1: 415-416 (Feb 23) 1952.

5 Muri, J. *Lethal p-Aminosalicylic Acid Intoxication*. Nord. med 47: 155-157 (Feb 1) 1952.

adenopathy, and lacrimation constitute a syndrome frequently found in drug hypersensitivity and should therefore awaken suspicion. It is necessary to know, in addition to these findings, that *p*-aminosalicylic acid hypersensitivity can cause the appearance of atypical lymphocytes and also evidence of liver damage. If the clinician is aware of these facts, he will recognize or suspect *p*-aminosalicylic acid hypersensitivity and promptly stop administration of the drug. Proof that the syndrome described is a hypersensitivity reaction is afforded by the fact that it recurs even after a long interval on readministration of very small doses of the drug.

Since the patients are almost always receiving streptomycin therapy concurrently, the reaction is frequently attributed to this drug, however, all of my patients have been able to continue taking streptomycin without difficulty after *p*-aminosalicylic acid therapy was discontinued and the reaction had subsided. Rare cases have been noted in which the hypersensitivity reaction recurs on readministration of either drug alone.¹⁶

Treatment may be attempted by the use of antihistamines. In my experience, this has not been effective enough to permit continued therapy. Desensitization, after the symptoms have subsided, has been reported successful in about 50% of the cases. My attempts have not been that successful. If tried, treatment should start with drop doses orally and increased very slowly.

p-Aminosalicylic acid is used with streptomycin mainly because it delays the emergence of resistant tubercle bacilli. Isoniazid or oxytetracycline (Terramycin) may be used as a substitute to accomplish this purpose in patients who cannot take *p*-aminosalicylic acid.

SUMMARY

A recently recognized syndrome caused by severe hypersensitivity to *p*-aminosalicylic acid is described. In addition to fever, rash, lymphadenopathy, and lacrimation, a blood picture simulating early infectious mononucleosis and evidence of liver involvement simulating hepatitis is noted in these patients. The symptoms subside promptly on withdrawal of the drug and recur if it is readministered. It is important not to mistake the syndrome for mononucleosis or hepatitis, because continued administration of the drug causes severe morbidity and may be fatal.

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6 Downey H and Stasney J. Infectious Mononucleosis. *Hematologic Studies* J A M A 105:764-768 (Sept. 7) 1935. McKinlay C. A. Infectious Mononucleosis. *Clinical Aspects* ibid 105:761-764 (Sept. 7) 1935.

7 Leibowitz S. Infectious Mononucleosis. Value of Differential Absorption Tests in its Serologic Diagnosis. *Am J Med* 13:172-182 (Aug) 1952.

Liver Function Tests—Careful clinical evaluation of jaundiced patients is of great importance since blind acceptance of results of liver function tests may be misleading. The alkaline phosphatase and flocculation tests are helpful in deciding whether jaundice is hepatocellular in origin or caused by extrahepatic bile duct obstruction. Phosphatase activity of 30 or more King Armstrong units strongly suggest obstructive jaundice. Conversely, positive results of flocculation tests indicate intrinsic hepatic disease. Use of this combination provided correct diagnosis in 72% of 54 jaundiced patients at Guy's Hospital, London. In 3 cases, the results were misleading and in 12, the two tests were valueless. Alkaline phosphatase is apt to exceed 30 King Armstrong units with malignant biliary obstruction.—S. Weiss, M.D., Jaundice, *Review of Gastroenterology*, October, 1952.

ULCERATION OF THE SKIN FOLLOWING INTRAVENOUS USE OF ARTERENOL

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and

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Tissue necrosis and ulceration of the skin have previously been reported as complications following the use of arterenol (3, 4-dihydroxyphenylaminoethanol).¹ Recently, we had occasion to observe a patient in whom similar lesions developed after the intravenous administration of this pressor amine into the right ankle. The drug was given, in this instance, to maintain blood pressure after an intestinal resection for gangrene of the bowel secondary to mesenteric vascular occlusion.

REPORT OF A CASE

A 48-year-old white married man had had 13 previous admissions to the Rhode Island Hospital in February, 1951, he was admitted because of severe intermittent claudication. A left lumbar sympathectomy was done. At operation no pulsations were noted below the bifurcation of the aorta, and the diagnosis of osteoporosis due to trauma was made. The following month the patient was admitted because of chest



Right lower extremity showing ulceration and necrosis of tissue (a) view along the course of the long saphenous vein and (b) a more detailed view of the area of ulceration about the knee.

pain. An electrocardiogram gave evidence of acute coronary insufficiency. In March, 1951, a right lumbar sympathectomy was performed, and in June of that year a left mid thigh amputation was carried out because of symptoms and signs of marked peripheral arteriosclerosis. In September, 1952, the patient was treated for acute lateral myocardial infarction. On Dec. 5, 1952, he noted crampy pain in the midabdomen associated with vomiting and diarrhea. On examination, his temperature was 98 F, pulse 120 and irregular, and blood pressure 150/110 mm Hg. Auscultation of the heart revealed the presence of auricular fibrillation, which was confirmed by electrocardiogram. Initially the abdomen was relaxed. During the succeeding hours increased tenderness and rigidity developed in his abdomen, associated with the disappearance of peristalsis. The white blood cell count was 39,000. On Dec. 6, 1952, an ileotransverse colostomy was performed because of gangrene of the small bowel secondary to a superior mesenteric artery occlusion. During the course of the surgery, the patient was given 1 arterenol (Levophed) into the right arm, 4 mg dissolved in 1,000 cc of dextrose in water and given at the rate of 20 drops a minute. The blood pressure was maintained satisfactorily. Postoperatively, the patient was digitalized and given quindine intramuscularly. In addition, a cut was made at the right ankle and a cannula inserted. A transient bout of

From the Heart Station, Rhode Island Hospital.

1 Greenwald H. P., Gootnick A., Luger N. M. and King J. A. Tissue Necrosis Following Subcutaneous Infiltration with Nor Epinephrine. *New England J Med* 246:252 (Feb. 19) 1952. Kurland G. S. and Malach M. The Clinical Use of Nor Epinephrine in the Treatment of Shock Accompanying Myocardial Infarction and Other Conditions. *ibid* 247:383 (Sept. 11) 1952.

hypotension developed, and arterenol was infused through the plastic cannula at the rate of 20 drops a minute. This was discontinued after a total of 100 cc was given, and the blood pressure became stable. Within 24 hours ulcers and blebs began to develop along the course of the right saphenous vein (see figure). These lesions progressed and became intolerably painful. Superficial gangrene appeared, which subsequently extended to the subcutaneous tissues. On Jan 3, 1953, a right mid thigh amputation was performed.

COMMENT

Arterenol is being employed with greater frequency in the treatment of peripheral vascular collapse. One of the effects attributable to its use has been local venospasm and phlebitis. Superficial vesicular eruptions and ulceration may then develop. The process may progress to gangrene. Conservative therapy is usually successful in the management of these complications, however, in the presence of peripheral vascular disease, one may not observe complete healing. Such has been our experience in this case. While the infusion of arterenol by means of a plastic cannula may be of value in preventing local extravasation, it does not prevent the development of venospasm and tissue necrosis. It is noteworthy that in this case arterenol was administered in an upper extremity without sequelae. Thus, in the presence of occlusive vascular disease, this drug should be used with extreme caution, if at all, and should be given in one of the arms.

NEUROLOGICAL COMPLICATIONS FOLLOWING THE USE OF "EFOCAINE"

REPORT OF THREE CASES

*Sidney K. Shapiro, M.D., Minneapolis and
David D. Norman, M.D., Bethesda, Md.*

"Efocaine," a long-acting local anesthetic, a product of E. Fougera & Co., has been publicized widely and is being used freely by the medical profession. "Efocaine" is a solution containing 1% procaine, 0.25% procaine hydrochloride, and 5% butyl-*p*-aminobenzoate in a solvent composed of 2% polyethylene glycol-300, 78% propylene glycol, and water. It is preserved with the usual preservatives, 0.1% sodium metabisulfite, and phenylmercuric borate (1:25,000). Bonica¹ has recently reported his experience with the use of "efocaine" in 100 patients. In six of these patients, postinjection neuritis and pain were encountered. He does not give details as to the seriousness or duration of disability in these patients. We have recently encountered three cases in which serious neurological residuals have resulted from the use of "efocaine." The purpose of this report is to urge caution in the use of this drug.

REPORT OF CASES

CASE 1—On Sept 9, 1952, a 34-year-old white man had the apical and posterior segments of the upper lobe of his right lung resected for tuberculosis. On Oct 1, a second segmental

resection of the upper lobe of the right lung was carried out. On this occasion the patient was placed in the usual three-fourth semiprone position, with the incision being made through the previous thoracoplasty scar. The second and third ribs were removed, and a more extensive resection was carried out without incident. At the conclusion of the procedure, 1 cc of "efocaine" was deposited about the intercostal bundles in the region of the tips of the transverse processes from the second through the seventh thoracic segments. Approximately eight hours after surgery, the patient became aware of the fact that he was unable to move his legs and was numb from the nipple line down. He became incontinent of urine and feces.

On Oct 2 the neurological examination revealed the presence of transverse myelitis with a sensory level at the fourth thoracic segment. Position sense was absent in the lower extremities. Deep tendon pain was intact. There was complete paralysis of all the muscles of the right lower extremity. In the left lower extremity, there was a trace of function in the hip flexors but the remainder of the musculature was completely paralyzed. The deep reflexes in the lower extremities were hyperactive. The toe signs were negative. When the patient was reexamined four weeks later, there had been only slight improvement in his neurological status. The findings were essentially unchanged except for the slight return of function in scattered muscle groups in the left lower extremity. A minimal dorsiflexion of the right big toe was the only movement in the right lower extremity. A sustained patellar and ankle clonus had developed bilaterally. At the time of writing (Nov 29), the patient continued to be paraplegic and the urinary incontinence had persisted.

Comment—It was the opinion of the operating surgeon that, owing to the obliteration of landmarks by the previous surgery, a portion of the "efocaine" deposited at the fourth rib level had found its way intratheca. Severe transverse myelitis developed, resulting in paraplegia due to use of the "efocaine."

CASE 2—A 32-year-old white woman on Sept. 14, 1952, while in labor received a paracervical injection of "efocaine" in an effort to block the pelvic nerves bilaterally. Coincident with the injection, she noted immediate numbness of the left leg. The patient delivered uneventfully. The numbness improved somewhat but persisted from the left knee down. On Sept 19, she began to complain of sharp shooting pains and constant aching of the left lower extremity. When examined on Sept 24, she demonstrated the following positive neurological signs: There was moderate weakness of the left quadriceps hamstrings, evertors of the foot, and dorsiflexors of the ankle and toes. The left ankle was markedly swollen, and the patient reported that this swelling increased when she was on her feet for any length of time. Reddish discoloration and excessive perspiration of the dorsum of the left foot were present.

When she was last seen on Oct 29, some improvement had occurred in the patient's condition. The pain had responded to the use of priscoline® (2-benzyl 2-imidazoline), 50 mg. three times a day, and physical therapy. The swelling of the foot and ankle, while still present, was less marked. The muscle weakness demonstrated on the initial examination persisted.

Comment—The lumbosacral plexus was involved at the time of the injection of the "efocaine" in this case. This involvement resulted in toxic neuritis, which is still partially disabling to this patient.

CASE 3—A 36-year-old white man was operated on for a solitary lesion in the upper lobe of the right lung on Sept 8, 1952. The fifth rib on the right side was resected from a point just proximal to the tip of the transverse process to the mid axillary line. After the completion of the operation, 2 cc of "efocaine" was instilled in the region of the intercostal bundle at the angle of the ribs from the third to the seventh thoracic

From the division of Neurology, University of Minnesota (Dr. Shapiro), Fellow, National Institute of Neurological Diseases and Blindness (Dr. Norman).

¹ Bonica, J. J. Management of Intractable Pain with Analgesic Blocks. J. A. M. A. 150: 1581-1586 (Dec. 20) 1952.

segment Twelve hours postoperatively, the patient noted anhidrosis on the right side involving the right side of the face and body extending down to the right groin This anhidrosis was complete above the level of the umbilicus, and partial from the umbilicus to the groin This condition was still present on Nov 28

Comment—Following the use of "efocaine," evidence of involvement of the sympathetic nervous system developed and has persisted in this patient The involvement was manifested by anhidrosis on the right side

SUMMARY AND CONCLUSIONS

Three cases have been reported in which, following the use of "efocaine," serious neurological symptoms developed and persisted to the time of writing Following the use of this drug, in case 1 transverse myelitis developed, in case 2 a lumbosacral neuritis, and in case 3 involvement of the sympathetic nervous system The use of "efocaine" should be sharply restricted and cognizance taken of the potentially serious nature of the neurological complications following its use

203 Doctors Bldg (Dr Shapiro)

ARACHNIDISM TREATED WITH CORTISONE

REPORT OF A CASE

Z Marenčić, M D, Pula, Yugoslavia

During recent years bites of the *Latrodectus tredecimguttatus* spider have been encountered frequently in Istria, Yugoslavia During the period 1948-1952 in the General Hospital of Pula, 101 patients were treated for this condition The persons bitten by the spider show¹ a disturbed general condition with severe pains, especially in the loins, abdomen, and extremities, convulsions, tachypnea, pressure in the chest, vomiting, excessive perspiration and salivation, and rigidity of abdominal muscles The tendon reflexes and the pressure of cerebrospinal fluid are increased, and changes in the fundus of the eye are, in some cases, marked The patients have hyperemia of the face, edema of the eyelids, and conjunctivitis, and show increased blood pressure, oliguria, albuminuria, abnormal values of urea blood concentration and urine dilution, and temporarily disordered liver metabolism In some cases some days afterward a rash appears In regard to other symptoms the local findings are relatively insignificant To a degree signs of the alarm reaction have been noted in my patients This is demonstrated by changes in the hemogram, with the appearance of leukocytosis, fall of eosinophils, neutrophilia and lymphopenia, increase in excretion of rest nitrogen, hemoconcentration, changes in the glucose curve and values of electrolytes in patients, as well as the pathological macroscopic and microscopic findings in the organs of experimental animals enlargement of the adrenals, and enlargement of the cortex with thin zona

glomerulosa and enlarged zona fasciculata and zona reticularis For these reasons cortisone therapy was used in the case herein reported

A country man from Poreč, aged 52, entered the General Hospital of Pula July 24, 1952 About 24 hours previously, when he was sleeping on the straw after threshing, he awoke because of pain radiating from the right knee into the groin Shortly afterward the pain became intense and moved to the abdomen, chest and loins He noted paresthesia and burning in his feet, especially in the soles The pains seemed to be pressing and cutting in the loins He was rather warm and felt as if he would "burst" The patient shivered, threw himself from side to side, was sweating extremely, and could not speak He did not urinate for 15 hours He vomited three times and had heartburn and highly increased salivation

The general condition was poor, and the patient could not stand on his legs A fear of death was noted Respirations were 30 per minute, superficial, and groaning The temperature was 36.7 C, pulse 84 per minute, and blood pressure 160/120 mm Hg His face was hyperemic, the conjunctivas were injected, and the eyelids and loose tissue below the eyes manifested slight edema The abdomen was slightly distended, the abdominal musculature rigid, and the liver palpable for ½ finger-breadth and sensitive to pressure On the medial side of his right knee there was a sharply limited red spot, the diameter of which was 1 cm The sensitivity to needle stings was diminished in this region The fibrillation of musculature in the right leg was marked

The abnormal laboratory findings were as follows leukocytes 12,400, eosinophils 56 per cubic millimeter, and urea nitrogen in blood 72 mg per 100 cc The white blood cell study showed slight neutrophilia and lymphopenia A thymol test and a hematocrit gave above normal results Fifteen minutes after admittance, at 3:15 p m, the patient, who weighed 58 kg, received 80 mg of cortisone (Cortone) acetate intramuscularly Twenty minutes later amelioration was noticed, the patient was quieter, did not throw himself about, and breathed easier After one hour he said that the formerly intense pain in the loins had disappeared and slight pain remained only in the abdomen Still he had disturbances in his feet According to my observations, of all the symptoms foot disturbances are most resistant to therapy and persist the longest in patients Relief became more manifest every hour At 5:30 p m the patient felt no disturbances except for slight pain in his feet Objective amelioration was also observed The patient was completely quiet, the rigidity of abdominal musculature had disappeared, the edema of the eyelids was less, and the breathing was quiet respirations were 20 per minute, and blood pressure, 120/85 mm Hg At midnight the patient had a relapse of pain, but afterward he felt well and slept Sleeplessness was observed as a constant symptom in my patients The next day the patient was well, and during the following days the laboratory and other findings returned to normal On July 26 a slight morbilliform rash appeared on his abdomen

CONCLUSIONS

Greiner² included the bites of venomous animals, such as *Latrodectus tredecimguttatus*, among diseases in which corticotropin (ACTH) and cortisone "appear to be of great value" In this case I am of the opinion that a somewhat larger dose of cortisone, and possibly two such doses, would have given a still better effect It is evident that for successful treatment of arachnidism one can also use less expensive drugs, but in severe cases or in those patients who are in danger of death cortisone possibly combined with calcium gluconate or antivenin would be of greater value In the case reported, arachnidism with manifest signs of alarm reaction was successfully treated with a single dose of 80 mg of cortisone

Opća bolnica

The cortisone acetate used in this study was manufactured by Merck & Company Inc Rahway N J

1 Marenčić Z. Beobachtungen über Pathologie und Klinik des Latrodectismus in Istrien (1948-1950) Acta trop 8 136-144 1951

2. Greiner T. Current Uses of Cortisone and ACTH Am J M Sc 223 553-568 1952

INSTRUMENT FOR CONTINUOUS RECORDING OF BODY TEMPERATURE

Robert M Weiss, M D

and

Charles B Ripstein, M D, Brooklyn

Artificial induction of low body temperature in patients undergoing cardiac surgery and in the treatment of hyperpyrexia has emphasized certain technical problems in clinical thermometry. The standard clinical thermometer, although adequate for the majority of studies, is not well suited to the newer methods for the production and maintenance of the hypothermic state. There are difficulties involved in reading the body temperature during surgical procedures and in the management of neurosurgical patients who require careful temperature control. The ideal instrument for these pur-

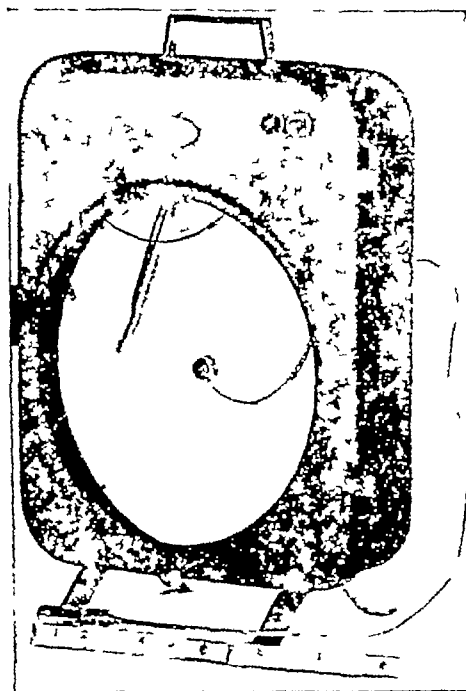


Fig. 1—The continuous recording thermometer

poses should possess certain qualifications. It should be highly accurate and simple to operate and interpret, and it should give a continuous record. In addition, it should be rugged and portable for use in the operating room and on the ward. We believe that the instrument described in this paper fulfills these specifications and represents a distinct advance in clinical thermometry. Previous attempts to produce such an apparatus have been conducted along the lines of thermocouple-galvanometer combinations with direct reading scales.¹ While such units possess a high degree of accuracy, they do not give a continuous record, and they require the personal attention of the observer to balance the galvanometer for each reading.

From the Department of Surgery, Maimonides Hospital, and New York University College of Medicine, New York.

1. Bigler J A. and McQuiston W O. Body Temperatures During Anesthesia in Infants and Children. J A M A 146: 551 (June 6) 1951.

2. The thermometer described is manufactured by the Weisker Thermometer Corporation, 52 W. Houston St., New York.

The instrument we have devised (fig 1 and 2) is an adaptation of a standard industrial, liquid-actuated, clock-motor-driven, recording thermometer.² The sensing unit is a specially designed stainless steel bulb on a narrow stem, which can be inserted into the rectum without discomfort to the patient. This is connected to the

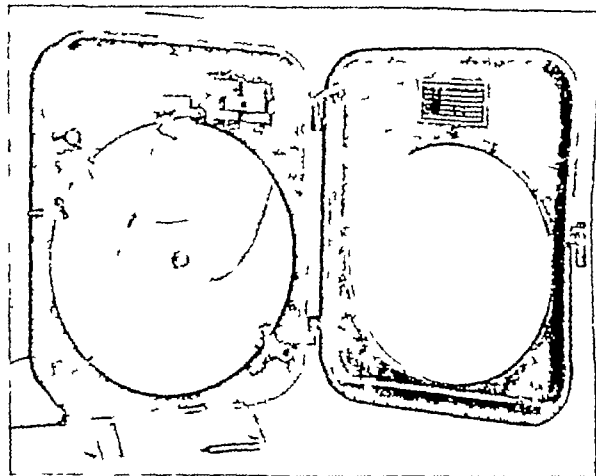


Fig. 2—Interior of continuous temperature recorder

recording thermometer by a plastic-covered, stainless steel, capillary tube 6 ft long. Self-contained batteries supply power for electrical contacts set at 103 F and 80 F so that warning lights are switched on automatically at these temperatures. The chart used (fig 3) has a scale range of 70 to 110 F, which is marked off in 0.5 F divisions and can be read to within 0.25 F. It gives a continuous 12 hour record, with 10 minute and hourly divisions.

For use, the instrument is wound up, the rectal insert is placed in position, and the inked pen is released. The unit requires no attention. Signal lights give warning if the temperature reaches the critical levels of 103 F and 80 F.

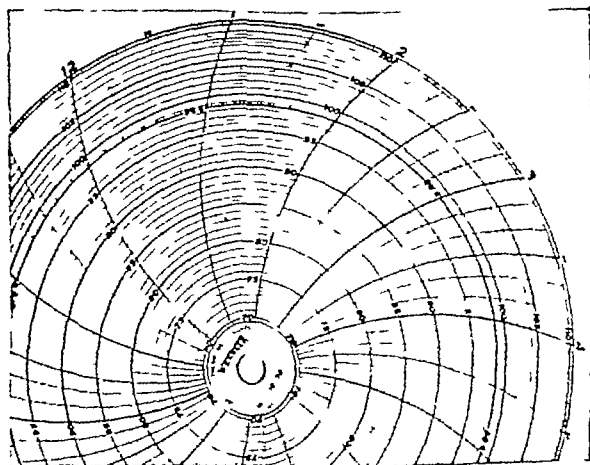


Fig. 3—Segment of temperature chart showing time and temperature graduations

We have used this unit on patients undergoing neurosurgical procedures, patients with pyrexia on a septic basis, and patients being made hypothermic for cardiac surgery. The results have been uniformly satisfactory.

4802 10th Ave (19) (Dr Ripstein)

COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

The following additional article has been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R T STORMONT, M D, Secretary

Zincasate Burn Dressing—Zinax Burn Dressing (Hynson, Westcott & Dunning)—Zincasate burn dressing consists of zincasate gel, a partially hydrolyzed casein gel, and zincasate gauze, a zinc acetate impregnated gauze.

Actions and Uses—Zincasate, a combination of partially hydrolyzed casein gel and zinc acetate impregnated gauze to be applied separately, is used as a dressing for the local treatment of burns by the closed pressure bandage technique. The gel, first applied over the injured area, is converted promptly into an insoluble coagulum at the point of contact with the zinc acetate impregnated gauze to form an adherent, protective, semipermeable membrane that permits the evaporation of water while reducing the loss of transudates. The gel will set eventually without the aid of zinc acetate gauze, so that the layer next to the wound is not immediately coagulated. The gauze, through its union with the adherent gel, provides some pressure and a surface to which an elastic bandage can be applied to increase pressure where this is feasible. The combined use of these materials should follow the same general principle and aseptic technique applicable to the use of petrolatum and plain gauze. The use of a coagulable protein and zinc acetate gauze has the slight advantage of convenience of application, avoidance of maceration, less need for redressing, and production of a pliable protective film permitting easier movement and transport of the patient.

Dosage—Zincasate gel and gauze dressing are applied after removal of obvious dirt or necrotic tissue, with sterile technique, but without surgical débridement. The casein gel should be applied to superficial as well as to more deeply injured areas to a thickness of not less than $\frac{1}{8}$ in (0.3 cm) and should extend beyond the borders of such areas. This is then covered with strips of the zinc acetate impregnated gauze, over which a pressure bandage is applied. Alternatively, the gel may be applied to the gauze, which is then placed over the injured area with the gel side in apposition to the wound. In first degree burns or burns that exhibit only erythema the dressing is usually removed the following day. In superficial second degree burns, the dressing may be left intact until healing occurs. At that time the dressing will readily drop away from the wound. Earlier removal can be accomplished by soaking the dressing with warm isotonic sodium chloride solution. In deep second and third degree burns, where grafting may be necessary, the surface is frequently ready for grafting within 9 to 12 days. In such cases it is advantageous to hasten removal of necrotic tissue by redressing once during this period. In severe burns, the gel film separates readily after the dead skin becomes lysed. It is not necessary to use occlusive bandages on the hands, arms, or face or in other areas where this is not feasible. Gauze is applied longitudinally to the extremities, rather than encircling the limb, to avoid abnormal constriction or pressure at vulnerable points. For small or facial burns, the gel and gauze may be applied as a patch without elastic bandage.

Tests and Standards—

ZINCASATE GAUZE. Assay (Zinc) Transfer to a porcelain crucible an amount of zincasate gauze accurately weighed containing the equivalent of about 0.3 gm of zinc acetate. Add 5 ml of nitric acid and heat to dryness on a steam bath and then ignite. Cool the crucible and contents. Dissolve the residue in about 5 ml of diluted hydrochloric acid. Filter the

solution and wash both crucible and filter paper with hot water. Bring the clear solution to a volume of about 50.75 ml and add enough sodium carbonate T.S. dropwise to precipitate all the zinc as the carbonate. Avoid a large excess of sodium carbonate. Boil the reaction mixture for 5 min., cool and filter through a tared Gooch crucible. Wash the precipitate thoroughly with hot water until the washings are no longer alkaline. Dry ignitely at 500° for 1 hour, cool and weigh. Each gram of zinc oxide formed is equivalent to 2.254 gm of anhydrous zinc acetate. The amount of zinc acetate is not less than 25.0 nor more than 35.0%.

ZINCASATE GEL. Physical Properties Zincasate gel is a pinkish tan viscous liquid with viscosity between 8×10^4 and 14×10^4 centipoises as determined with the Brookfield viscosimeter. The gel has a pH of 6.5-7.0. It is readily coagulated by zinc acetate.

Purity Tests Transfer to a tared platinum crucible about 5 gm of zincasate gel accurately weighed and dry at 105° for 10 hours. The amount of residue which remains is not less than 20.0 nor more than 22.0%. Save the residue for the ash determination.

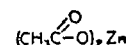
Char the residue from the total solids determination ignitely until all the carbon has been removed, cool and weigh. The amount of residue is not less than 2.7 nor more than 3.7%.

Assay (Nitrogen) Transfer to a Kjeldahl flask about 0.1 gm of zincasate gel and determine the nitrogen by the U.S.P. semi-micro Kjeldahl method. Each milliliter of 0.01 N acid is equivalent to 0.0001401 gm of nitrogen. The amount of nitrogen is not less than 2.25 nor more than 2.45%.

(Amino Nitrogen) Transfer to a 250 ml beaker about 10 gm of zincasate gel accurately weighed, add about 75 ml of water and stir until solution is complete. Add 10 ml of neutralized 37% formaldehyde mix well and electrometrically titrate the solution with 0.1 N sodium hydroxide. Each milliliter of 0.1 N sodium hydroxide is equivalent to 0.001401 gm of nitrogen. The amount of amino nitrogen is not less than 0.18 nor more than 0.20%.

For tests and standards on Zinc Acetate N.N.R., see the monograph for this material.

Zinc Acetate— $C_4H_6O_2 \cdot Zn \cdot 2H_2O$ —M.W. 219.50—The structural formula of zinc acetate may be represented as follows.



Tests and Standards—

Physical Properties Zinc acetate is a white crystalline solid having a pearly luster and a very faint acetic acid odor upon exposure to air. The crystals gradually effloresce. It is freely soluble in water and soluble in alcohol. The pH of a 1% solution is 5.5-7.0.

Identity Tests Dissolve about 0.1 gm. of zinc acetate in 5 ml. of water, add 0.5 ml of sulfuric acid and heat. A strong odor of acetic acid is noticeable (presence of acetate group).

Dissolve about 0.1 gm of zinc acetate in 15 ml of water and pass hydrogen sulfide through the solution. A white precipitate forms that is insoluble in acetic acid but is soluble in diluted hydrochloric acid (presence of zinc).

Purity Tests Transfer to a 100 ml volumetric flask 1 gm of zinc acetate accurately weighed, add 75 ml of water and shake until solution is complete. Add enough ammonium sulfide T.S. to precipitate the zinc completely, fill to the mark with water, mix and filter. Transfer to a porcelain evaporating dish 50 ml of the clear filtrate, add 5 drops of sulfuric acid, evaporate to dryness and ignite to constant weight. The weight of the residue does not exceed 5 mg. (presence of alkalis and earths).

Dissolve 0.2 gm of zinc acetate in 5 ml of water and run a U.S.P. arsenic test. The amount of arsenic does not exceed 10 ppm.

Dissolve 0.5 gm. of zinc acetate in 7 ml. of water and transfer the solution to one of a pair of matched Nessler tubes. Add 10 ml of 10% potassium cyanide, mix well and allow the mixture to become clear. Prepare a standard by placing in the other Nessler tube 5 ml. of water, 2.5 ml of U.S.P. standard lead solution and 10 ml of 10% potassium cyanide. To each of the solutions add 0.1 ml of sodium sulfide T.S. mix the contents and allow the tubes to stand for 5 min. The color produced in the sample is not greater than that produced in the standard indicating not more than 50 ppm of heavy metals.

Assay (Zinc Acetate) Transfer to a 250 ml beaker about 1 gm of zinc acetate accurately weighed and add 100 ml of water. Heat the solution to about 90° and add sodium carbonate T.S., dropwise to precipitate all of the zinc. Avoid a large excess of sodium carbonate. Boil the mixture for about 5 min and set it aside to allow the precipitate to settle. Collect the precipitate in a tared Gooch crucible and wash with hot water until the washings are free from alkali. Dry the residue, ignite and weigh. Each gram of zinc oxide is equivalent to 2.254 gm of anhydrous zinc acetate. The amount of anhydrous zinc acetate is not less than 82.7 nor more than 87.3% equivalent to not less than 99.0 nor more than 104.5% of the dihydrate.

Hynson, Westcott & Dunning, Inc., Baltimore, Md

Zinax Burn Dressing 8.18 cc tubes of zincasate gel packaged with 10 gauze pads and 118.3 cc cans of zincasate gel packaged with 2 yards of gauze. The gauze is impregnated with approximately 30% zinc acetate by weight. U.S. patent 2,579,367.

THE JOURNAL

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POSTGRADUATE CONTINUATION COURSES FOR PHYSICIANS

The semiannual listing of postgraduate continuation courses prepared by the Council on Medical Education and Hospitals appears elsewhere in this issue (page 629). Opportunities for this type of postgraduate education are presented for the six month period beginning July 1. There are a total of 784 courses listed, 418 being offered on a full-time basis and 366 on a part-time schedule. The courses vary in length from a few days to several months. For this six month period, postgraduate education in some form is being given in 37 states, the District of Columbia, and Puerto Rico. The subjects include 34 major areas in the field of clinical medicine and 9 basic science subjects. There are learning opportunities for the physician in general practice as well as the specialist. Many courses are designed to be of assistance to physicians preparing for specialty board certification. The courses available for this purpose are designated by a footnote. A series of courses for military personnel at medical installations is also included. In a number of instances the series of courses for military personnel are made available to civilian physicians. This is also designated by a footnote.

A total of 134 agencies offer postgraduate training in this listing, including 43 medical schools, 35 special medical societies, 18 hospitals, 12 academies of general practice, 11 state medical societies, 6 graduate schools of medicine, and 3 agencies, representing boards of health, schools of public health, and government departments, respectively.

The Council tries to make this listing as complete as possible. Institutions and organizations whose courses are not included in the list are invited to furnish the Council with details pertaining to the opportunities that have been developed for continuation study for physicians.

In addition to the compilation of this semiannual list of postgraduate courses, the Council is engaged in a field study of postgraduate education. A member of the Council's staff has spent the last six months contacting those responsible for such training and collecting facts, figures, and opinions. All sections of the country will have been visited by the summer of 1953. The Council plans to prepare a comprehensive report of its findings.

VIRAL HEPATITIS

The widespread use of blood and blood products during World War II led to the recognition of serum hepatitis as a complication of parenteral injections. In the years that followed, considerable controversy arose as to whether this condition was a disease distinct from infectious (epidemic) hepatitis. In a recent article Stokes¹ has summarized succinctly the evidence favoring the viewpoint that infectious hepatitis (hepatitis A) and serum hepatitis (hepatitis B) are different entities despite their essentially identical clinical manifestations. In his discussion Dr. Stokes draws widely on his own observations of both natural infections and experimentally induced infections in human volunteers.

First, experiments with volunteers and observations under natural conditions have yielded convincing evidence of a lack of cross immunity between the two viruses, thus indicating antigenic differences. Again, Red Cross gamma globulin has been shown repeatedly to give a high degree of protection against infectious hepatitis. On the other hand, with but one known exception, it has proved ineffective against natural or experimentally induced serum hepatitis and in neutralizing virus B. Even gamma globulin prepared from volunteers convalescent from hepatitis A failed to neutralize virus B. Furthermore, convalescent plasma from one such patient failed to neutralize virus B or protect against hepatitis B, thus tending to rule out the possibility that antibodies might be present in a fraction of the globulin other than the gamma fraction.

Another distinguishing feature of the two infections is the presence of the virus in the stools of patients with hepatitis A and the ease with which the disease may be spread by direct contact or by milk, food, or water that contains the virus. On the other hand, Stokes and his associates were unable to produce serum hepatitis by parenteral injection of stool filtrates, which could explain the lack of epidemics of hepatitis B. Again, while the incubation periods of both diseases may be lengthened by low titer or by attenuation of the virus, the mean incubation periods in volunteers and in natural infections will average 20 to 30 days with hepatitis A and 60 to 90 days with hepatitis B. Yet another difference between the two lies in the fact that hepatitis A rarely affects older persons, suggesting that permanent immunity to the disease may develop. There is, however, a high incidence of hepatitis B in older patients, suggesting that this either causes disease infrequently or does not cause complete immunity. The latter view is supported by the fact that in at least five of nine volunteers who had had hepatitis B there were transient mild symptoms.

1 Stokes J., Jr. Viral Hepatitis. *Am J M Sc* 225:349 1953.

2 Neefe J. R., Gellis S. S., and Stokes J. Jr. Homologous Serum Hepatitis and Infectious (Epidemic) Hepatitis. Studies in Volunteers Bearing on Immunological and Other Characteristics of the Etiological Agents. *J Med* 1 3 1946.

and/or laboratory findings suggestive of mild hepatic disturbance when these persons were tested later with the same virus²

Dr Stokes mentions two other possible differences between hepatitis A and hepatitis B now under active investigation. In the first place, such data as are available suggest that there is a distinctly higher incidence of carriers of hepatitis B than of hepatitis A. In the second place, a skin test for virus A has proved in preliminary tests to be 80 to 95% accurate for detecting persons previously exposed to virus A. In persons known to have had hepatitis B, positive reactions to the test occur in the same percentage as in a random sample of population of the same age range, thus apparently indicating immunity from unrecognized prior infection.

From the evidence presented it appears reasonable to conclude that there is an antigenic distinction between virus hepatitis A and virus hepatitis B and that the differences between the two are apparently greater than mere strain differences, in view of the lack of immunity and of serum antibodies in the older groups of the population to hepatitis virus B. Furthermore, the skin test has provided evidence that hepatitis virus A may be a simple antigenic entity to which one attack gives immunity and for which antibodies remain in the blood during life in appreciable quantities. On the other hand, there is little evidence at present regarding the unity or multiplicity of antigenic types in viral hepatitis B.

REGISTRATION UNDER THE HARRISON NARCOTIC ACT

Physicians who are registered under the Harrison Narcotic Act or under the Marihuana Tax Act must effect reregistration on or before July 1 to avoid a penalty. Each year, despite the annual warnings in THE JOURNAL, this requirement is overlooked by some physicians, and unpleasant consequences follow. Failure to register adds a penalty of 25% to the tax payable and, in addition, subjects the physician to the possibility of a fine not exceeding \$2,000 or to imprisonment for a maximum of five years, or to both. The Commissioner of Internal Revenue has in past years given some tardy registrants the choice of paying sums by way of compromise, a procedure authorized by law, or accepting criminal prosecution. If this procedure does not produce

the required promptness in reregistration, the commissioner will have no choice but to institute criminal prosecution.

DR WALTER B MARTIN— THE PRESIDENT-ELECT

On June 4 Dr Walter B. Martin of Norfolk, Va., became President-Elect of the American Medical Association. His election by the House of Delegates at its 102nd annual session in New York came in recognition of his many years of outstanding service to the medical profession. In the past 35 years, while conducting an active and successful practice in internal medicine, he has served as member of the Board of Trustees and House of Delegates of the American Medical Association, member of the Association's Council on Medical Service, Committee on Legislation, and Coordinating Committee for the National Educational Campaign against socialized medicine, chairman of a committee for the study of the National Health Service in Great Britain, president of the Norfolk County Medical Society, the Medical Society of Virginia, and the Seaboard Medical Association, vice-president of the Tri-States Medical Association of the Carolinas and Virginia, and member of the Southern Medical Association. During this time he has also rendered distinguished service to the U. S. Army and to his community.

Dr Martin was born in Pulaski, Va., in 1888. He re-

ceived a B.S. degree from the Virginia Polytechnic Institute in 1909 and taught chemistry and mathematics at Norfolk Academy from 1910 to 1912. In 1912 he entered Johns Hopkins University School of Medicine and received his M.D. degree in 1916. After completing a year as resident house officer at Johns Hopkins Hospital, he was commissioned lieutenant and then captain in the U. S. Army Medical Corps, where he served as assistant division surgeon, 4th Division, and assistant chief of the medical service at Fort Sheridan General Hospital during World War I. In 1919 he began the practice of internal medicine in Norfolk, Va. There he became chief of the medical service at St. Vincent De Paul Hospital, attending physician in medicine at Norfolk General Hospital, and attending specialist in internal medicine at the U. S. Public Health Service Hospital. From 1942 to 1944 he served as lieutenant colonel in the Army Medical Corps, first at Walter Reed Hospital and then as chief of the



WALTER B. MARTIN, M.D.

PRESIDENT-ELECT OF THE AMERICAN MEDICAL ASSOCIATION

medical service at Percy Jones Hospital, Battle Creek, Mich. In 1944 he became medical consultant to the 5th Service Command and later medical consultant to the 10th Army in the Pacific theater. In 1946, after his discharge from the Army, he was made civilian medical consultant to the Surgeon General of the Army.

Dr. Martin is a diplomate of the American Board of Internal Medicine, a fellow of the American College of Physicians and member of its board of regents, a member of the American Society for the Study of Allergy, the American Rheumatism Association, the American Clinical and Climatological Association, and the Association for the Study of Internal Secretions, and an associate member of the American Society for Clinical Pathologists. He is a member of Phi Beta Kappa, Alpha Omega Alpha, and Nu Sigma Nu fraternities.

DR ALFRED BLALOCK AWARDED DISTINGUISHED SERVICE MEDAL

At its 102nd annual session in New York, June 1, the House of Delegates of the American Medical Association awarded its highest scientific honor, the Distinguished Service Medal, to Dr. Alfred Blalock of Baltimore for his outstanding work in vascular surgery, especially for his part in the development of the "blue baby operation." This operation, first performed in 1944, has since saved the lives of hundreds of infants with congenital pulmonary stenosis. For this and his many other contributions to surgical science, Dr. Blalock has gained international recognition and an impressive list of honors.

Dr. Blalock was born in 1899 at Culloden, Ga. He received his M.D. degree from Johns Hopkins University in 1922. After serving as intern and resident at Johns Hopkins and at Vanderbilt University Hospital, he became a member of the faculty at the latter institution, where he was active in laboratory and clinical research. In 1940 he published his book "Principles of Surgical Care: Shock and Other Problems" and in the same year was awarded the research medal of the Southern Medical Association for his work on circulatory dynamics in shock. In 1941 he returned to Johns Hopkins University School of Medicine as professor of surgery, director of the department of surgery, and surgeon-in-chief of the Johns Hopkins Hospital. In 1948 he received jointly with Helen Taussig the Passano Foundation Award for the development of the "blue baby operation"; in 1949 he received the Rene Lenche Award, and in 1950 the

Rudolph Matas Award in vascular surgery. The University of Rochester awarded him an honorary doctor of science degree in 1951. In recognition of his work, a number of foreign societies have honored Dr. Blalock. He has been made honorary fellow of the Royal College of Surgeons of England, honorary associate consultant surgeon to Guy's Hospital, London, Chevalier of the Legion of Honor of France, honorary fellow of the Greek Surgical Association, and honorary member of the British Cardiac Society, the Sociedade Brasileira de Cardiologia, and the Society of Thoracic Surgeons of Great Britain and Ireland. He is a foreign member of the Belgian Society of Surgery and the Colegio Brasileiro de Cirurgicoes, and foreign associate of the Académie de Chirurgie of France.

Dr. Blalock's contributions in the field of experimental medicine have earned for him membership in the National Academy of Sciences and the National Research Council. He is also a member of the American Association for the Advancement of Science and the American Society for Clinical Investigation, a consultant on experimental medicine to the Medical Memorial Fund, and a member of the advisory council of the Life Insurance Medical Research Fund. He has been a leader in many national surgical organizations. He is a member of the founders group of the American Board of Surgery and of the Board of Thoracic Surgery, a member of the board of regents of the American College of Surgeons, a past president of the American Association of Thoracic Surgery, and a member of the council of the Southern Surgical



ALFRED BLALOCK, M.D.
AWARDED DISTINGUISHED SERVICE MEDAL

Association. He is also a member of the International Society of Surgery, the American Surgical Association, the Society of Clinical Surgery, the Society of University Surgeons, the Society of Vascular Surgery, the Southern Medical Association, and the American Medical Association. In addition, Dr. Blalock has rendered valuable service on the editorial boards of a number of medical journals. He has served as associate editor of *Surgery* since 1936, member of the consulting editorial board of *Surgery, Gynecology and Obstetrics* since 1942, member of the editorial board of the *Archives of Surgery* since 1939 and the *American Heart Journal* since 1945, member of the advisory editorial board of the *Journal of Thoracic Surgery* since 1946, and member of the editorial committee of the *American Review of Medicine* since 1948. To these and other journals he has contributed many important original articles on shock, hypertension, heart disease, and other subjects.

MEDICAL NEWS

ARKANSAS

Clinical Assembly—The Alumni Association of the University of Arkansas School of Medicine, Little Rock, is inaugurating a clinical assembly in conjunction with graduation, June 14-15. Alumni guest speakers will include Drs James W McLaurin, Baton Rouge, La., Horace C Jones, Grand Rapids, Mich., and Louis L. Friedman, Birmingham, Ala. A portion of the session will be presented by the medical school faculty. Monday afternoon there will be a symposium on "Recent Trends in Diagnosis and Treatment." The clinical session will be followed by an organization meeting of the alumni association, with Dr Eugene H. Crawley acting as chairman. All alumni of the University of Arkansas School of Medicine and physicians practicing within the state of Arkansas are cordially invited.

CALIFORNIA

Dr Pottenger Honored—At its annual meeting in Atlantic City, N. J., the American College of Physicians bestowed on Dr Francis M. Pottenger, Monrovia, its highest award, the certificate of "Master." Dr Pottenger, who has served as president of the Los Angeles County Medical Association, is the author of many papers and books on tuberculosis.

Children's Hospital—The new \$1,500,000 three story Michael J. Connel Clinic was recently dedicated at Children's Hospital in Los Angeles. It houses 38 clinics capable of serving 350 child outpatients a day. Children's Hospital has received an \$875,475 bequest in the form of a trust fund to be known as the Ernest H. and Dora H. Parker Fund for Medical and Surgical Research.

Society News—The California Medical Association announces that members who continue to use a method of cancer treatment after being warned that it is valueless will be subjected to censure, suspension, or expulsion from their medical groups. The action followed approval by the association's nine man cancer commission of a 22 page report on the first of a group of products to be evaluated in a full scale investigation of unproved cancer treatments. The report stated that "no objective evidence was found indicating control of cancer under treatment with this substance alone," and that the product proved "ineffective in three independent studies on laboratory animals." Dr Ian MacDonald, associate professor of surgery at the University of Southern California School of Medicine, Los Angeles, is chairman of the commission.

COLORADO

Pediatric Clinics in Denver—The fifth annual summer clinics of the Denver Children's Hospital, which will meet June 24-26 at the hospital, 19th Avenue at Downing Street, will have as guest speakers Drs Eugene T. McEnery, Chicago, Hattie E. Alexander, New York, and William T. Mustard, Toronto, Canada. The program will include two hour clinics on the diagnosis and treatment of infectious, cardiac, orthopedic, hematological, and chemical disorders in pediatric medicine and surgery. Luncheon, served each day in the hospital, will be followed by a question and answer period. Requests for registration should be addressed to the Chairman of the Summer Clinics, Children's Hospital, Denver 18, together with \$5 to apply on the \$25 fee.

CONNECTICUT

Fifty Year Club—The following physicians in the Connecticut State Medical Society were presented with awards and service pins during the annual dinner at the Waverly Inn, Cheshire: Richard F. Rand, Hamden, C. Brewster Brainard, West Hart-

ford, George H. Warner, Bridgeport, Robert Hazen, Thomaston, Frederick B. Braden, Essex, and Arthur A. Chase, Plainfield.

Emergency Call Plan—A full scale emergency medical call plan to serve residents of New Haven and adjoining communities has been announced by the New Haven Medical Association. The emergency panel comprises 70 physicians in general practice and 88 specialists. Communities covered by the service include East Haven, North Haven, West Haven, Hamden, Branford, Orange, and Woodbridge. The emergency service, organized by a special committee of the association headed by Dr Samuel Spinner, represents more than four months of surveys and planning, during which questionnaires were mailed to 415 physicians. The New Haven plan is the 15th emergency service to be sponsored by county and local medical associations in Connecticut, thus making emergency medical services available to an estimated 70% of the state's 2 million residents.

FLORIDA

Seminar on Gastroenterology—Dr H. Marvin Pollard, professor of internal medicine, University of Michigan Medical School, Ann Arbor, will conduct a seminar on gastroenterology at George Washington Hotel, Jacksonville, June 18-20.

Graduate Short Course—The 21st annual graduate short course for doctors of medicine will be held at the George Washington Hotel, Jacksonville, June 22-27. The faculty will include Drs Thomas M. Durant and Julius L. Wilson, Philadelphia, Robert E. Cooke, New Haven, Conn., M. Edward Davis, Chicago, Kenneth W. Warren, Boston, and Conrad G. Collins, New Orleans.

GEORGIA

Fraternity Lectureship—Phi Delta Epsilon fraternity of the Medical College of Georgia, Augusta, recently presented its annual lectureship, with Dr Isadore Snapper, Chicago, as guest lecturer, speaking on "Metabolic Bone Diseases."

Narcotic Violation—Dr Jarrell M. Estes, Abbeville, was convicted in the U. S. District Court of violating the federal narcotic law and on Jan. 22 was sentenced to serve a term of 24 months.

ILLINOIS

Hospital News—The Chicago Hospital Council reports that Chicago area hospitals spent nearly 21 million dollars in the last year on construction and improvements. Most of it was used to expand 'preventive' medical programs, which sought 'to reduce the need for inpatient bed space by improving methods of keeping people healthy before they require hospitalization.' At least 12 hospitals installed special flooring and purchased special shoes for operating room personnel to eliminate the danger of explosions caused by static electricity, and 5 general hospitals added or planned for psychiatric units. Chicago area hospitals are reported to have had more than 700,000 outpatient visits during the last fiscal year. St. Luke's Hospital has opened a campaign to raise \$1,500,000 for a medical service building that will consolidate facilities of the hospital and make additional beds available in the present buildings.

Chicago

Gift to Medical School—The Chicago Medical School Faculty Wives Association has presented to the school a check for \$8,000, the proceeds of a recent recital sponsored by the association.

Society News—At its annual meeting the Chicago Society of Internal Medicine elected the following officers: president, Dr Richard B. Capps, vice president, Dr Arthur R. Colwell, Evanston, Ill., and secretary treasurer, Dr Edwin N. Irons.

Physicians are invited to send to this department items of news of general interest for example those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

—At the annual meeting of the Chicago Urological Society the following officers were elected president, Dr Andrew McNally, vice president, Dr John W Ferrin, and secretary-treasurer Dr Joseph H Kiefer

Research Professional Services Building at Mount Sinai—Mount Sinai Hospital Medical Center recently dedicated an 11 story research and professional services building on West 15th Street and California Avenue, erected and furnished at a cost of about \$3,400,000, provided by the building funds of the Jewish Federation of Chicago, the Board of Directors of Mount Sinai Hospital, the medical staff, and various auxiliaries. The building has eight specialized laboratory divisions, six major operating rooms, and several minor operating rooms and first-aid stations. The professional services facilities of the hospital are available to any physician in the Midwest, whether or not he is a staff member of Mount Sinai Hospital. Physicians may refer patients to the facilities of the hospital for complete work up, laboratory tests, or other diagnostic tests by full time hospital scientists (at a moderate fee), results of examinations and laboratory tests will be sent to the patient's physician, thus avoiding need of hospitalization for observation and releasing beds for acutely sick patients. Much of the work done at Mount Sinai Hospital is of a philanthropic nature, one of every three cancer patients, for example, being treated at no cost or at a greatly reduced fee. Dr Stephen E Manheimer is executive director of the hospital.



Mount Sinai Research Laboratories and Professional Services Building

KANSAS

Society News—The Kansas Psychiatric Society recently elected Dr William Rottersman, Topeka, president, and Dr Robert C Anderson, Topeka, vice president, and reelected Dr John R Adams, Topeka, as secretary treasurer.

Symposium on Chest Disease—A symposium on diseases of the chest will be held at the State Sanatorium for Tuberculosis, Norton, 1 30 p m June 14, under the auspices of the Northwest Kansas Medical Society. Dr Carl W Tempel, Fitzsimons Army Hospital, Denver, will conduct the symposium. Mr Olaf Soward, Topeka, will speak on "What the Public Thinks of the Medical Profession."

Dr Thacher Honored—The town of Waterville recently held a program in honor of Dr George I Thacher, who has served nearly 30 years on the board of education, was a commissioner 20 years and has been mayor. Appointed to the Kansas State Board of Health in 1925, he was elected president of that group in 1936 and served in that capacity for 15 years until his resignation from the board in April, 1951. Dr Thacher entered the Army as a first lieutenant in 1917, emerged in 1919 with the rank of major and after World War I rose in the Army reserve to the rank of lieutenant colonel. At 76 he is still active in practice.

MICHIGAN

Meeting of Upper Peninsula Society—The Upper Peninsula Medical Society will hold its annual meeting June 19 20 in Escanaba. Out-of-state speakers include Drs John L Emmett, Rochester, Minn., Leslie W Freeman, Indianapolis, Robert S Baldwin, Marshfield, Wis., Lowell D Snorf, Evanston, Ill., Carl Davis Jr and Francis E Seneear, Chicago, and Jack A. Klieger and John Steele, Milwaukee.

Personal—Dr C Dale Barrett Jr has been appointed director of the maternal, child, and school health division of the Detroit Department of Health to succeed Dr Garner M Byington, who retired. Dr Barrett, who came to the department of health in 1949, was previously affiliated with the Ottawa County Health Department, Grand Haven.—Dr Jerome W Conn, professor of medicine, University of Michigan Medical School, Ann Arbor, recently delivered the Arthur S Loevenhart Lecture on "Endocrine Regulation of the Blood Sugar, with Particular Reference to Diabetes Mellitus" for Phi Delta Epsilon of the University of Wisconsin Medical School, Madison.—Dr William C Behen, Lansing, has returned after an expedition of about five months, during which he served at eye clinics in Shikarpur, Pakistan, Patna, India, and Barcelona, Spain.

NEW YORK

Dr Brumfield Appointed to Medical Faculty—Dr William A Brumfield Jr, Albany, first deputy state commissioner of health, has been appointed professor of public health and preventive medicine at State University College of Medicine, Syracuse, where he is expected to assume his new duties about Sept 1. Dr Brumfield has been affiliated with Indiana University School of Medicine, Indianapolis, the University of Virginia Hospital, Charlottesville, and, since June, 1935, the New York State Department of Health, returning to it with the rank of colonel after four years in the Army Medical Corps during World War II.

Hospital News—Dr Bjorn Vestergaard, Danish psychiatrist, has been appointed to the staff of a special research project in progress at Rockland State Hospital, Orangeburg. His work will be particularly concerned with the relationship of hormones to mental disease. Since October, 1949, Dr Vestergaard has served as director of biochemical research at Sct Hans Hospital Ved Roskilde, Denmark, where he conducted biochemical and endocrinological investigations on psychiatric patients. He is the author of scientific papers on this period of his research, published both in Danish and in English.—Dr Henry S Martin, immediate past president of the Eighth District Branch of the New York State Medical Society, who has served for nearly 20 years as chief surgeon of the Wyoming County Community Hospital, Warsaw, has been appointed chief of staff emeritus following his resignation from the full-time staff. Dr George W Nairn, head of the hospital's eye, ear, nose, and throat department, has been named surgeon-in-chief, and Dr Paul A. Burgeson will occupy, as acting chief of staff, the other office vacated by Dr Martin.

New York City

Award to Dr Papanicolaou—The Leonard A. Wien Award for Outstanding Research in Cancer Cytology was awarded to Dr George N Papanicolaou, professor of anatomy at Cornell University Medical College, during the annual seminar and conference on cancer cytology conducted by the Dade County Cancer Institute in Miami. The award of \$1,000, accompanied by a medal, was established by Dr Leonard A Wien of Miami, now serving his second year as president of the institute.

Plaque Dedicated to Dr Munger—Alumni and faculty of Columbia University's School of Public Health have dedicated a plaque in the school library at the Columbia Presbyterian Medical Center to the late Dr Claude W Munger, professor of hospital administration at the school, 1945-1950. Among the speakers were Dr Harry S Mustard, former New York City Health Commissioner, and Dr E Dwight Barnett, director

of the Institute of Administrative Medicine, Columbia University Dr Munger, who died in 1950, in addition to his teaching duties as a member of the faculty of Columbia University College of Physicians and Surgeons was director of St Luke's Hospital for 11 years and president of the American Hospital Association in 1936 and 1937

Personal—On their recent tour, Dr Ralph Colp, clinical professor of surgery, and Dr William M Hitzig, assistant clinical professor of medicine, Columbia University College of Physicians and Surgeons, lectured and made rounds at the General Hospital of the University of Malaya Medical School Dr Colp spoke on "Recent Methods in the Surgical Management of Gastric and Duodenal Ulcer," and Dr Hitzig on "Medicine at the Crossroads" Both men were guests at Singapore of Mr Mekie, professor of surgery, and Prof Ransome, professor of medicine, University of Malaya Medical School Drs Colp and Hitzig made observations on police medicine, as part of a far eastern survey that took them to China, Thailand, Cambodia, Viet-Nam, and India before their departure for England

NORTH CAROLINA

Postgraduate Course at Durham—The Duke University School of Medicine, Durham, offers a postgraduate course June 22-25 at Duke Hospital (registration fee, \$25) Monday and Tuesday will be devoted to anesthesia, with round table discussions at 8 p m The Wednesday program will include liver diseases, allergic diseases, and intravenous alimentation, and on Thursday neoplasms and head injuries will be discussed Ward rounds and clinic visits will be held Wednesday and Thursday Guest lecturers will be Drs Howard M Ausherman, chief of anesthesia, VA Hospital, Durham, and David A Davis, professor of anesthesiology, University of North Carolina School of Medicine, Chapel Hill Other lecturers will be from the staff of Duke University School of Medicine The faculty of the medical school will give a barbecue for all participants of the course Wednesday, 6 30 p m For information, address Director of Postgraduate Education, Box 3088, Duke Hospital, Durham

NORTH DAKOTA

Clinic Observes Silver Anniversary—The 25th anniversary of the Northwest Clinic, Minot, was recently observed, with (1) an open house reception for the public, (2) a program on which Dr Edwin F Hirsch, pathologist of St Luke's Hospital, Chicago, discussed 'Cancer of the Lungs', and (3) a dinner in the Clarence Parker Hotel at which Dr Russell A Nelson, director of the Johns Hopkins Hospital, Baltimore, was guest speaker

OHIO

Golfers' Tournament—The Ohio State Medical Golfers' Association will hold its annual tournament June 18 at the Elyria Country Club (on U S 20 between Elyria and Oberlin) Any male physician who is a member in good standing of the Ohio State Medical Association may send an application to Bob Elwell, Secretary and Treasurer, Ohio State Medical Golfers' Association, 3101 Collingwood Blvd, Toledo 10 The initiation fee for new members is \$5, and the greens fee, luncheon, banquet, and prizes, \$14

RHODE ISLAND

Brown University Appoints Health Director—Dr Charles J Hutchinson, recently retired chief medical officer of the Boston Naval Shipyard, former professor at the University of Minnesota School of Medicine, Minneapolis, has been appointed full time director of the Brown University Health Division, to succeed Dr Charles A McDonald, who will reach the retirement age July 1 His duties will include supervision of the health services for Brown and Pembroke undergraduates and students of the graduate school Following World War I duty, Dr Hutchinson held naval reserve status and in 1940 was recalled to active duty when he took charge of the naval dispensary at the University of Minnesota Thereafter, he was engaged in the medical outfitting of ships on the Pacific Coast

and served for a time as senior medical officer of an attack transport whose mission was the evacuation of casualties from Pacific island invasion beaches

SOUTH DAKOTA

State Medical Meeting at Rapid City—The South Dakota State Medical Association will hold its annual meeting in the City Auditorium, Rapid City, June 14 16 Dr Roy E. Jerntrom, Rapid City, will deliver the presidential address at the annual banquet in the Alex Johnson Hotel June 15 at 7 p m Alfred P Haake, Ph D, Chicago, economic consultant to General Motors Corporation, will be guest speaker at the banquet, which will be preceded by open house at the Rapid City Medical Center, 5-7 p m The first general session will open Monday, 8 15 a m, with a film on Dermatologic Procedures for the General Practitioner The following topics will be discussed by guest speakers

Artificial Kidney, Oliver G Stonington, Denver
Problems of the Newborn, Paul D Bruns, Denver
Surgery of Stenotic Valvular Heart Disease with Emphasis on Congenital Malformations, Robert P Glover, Philadelphia
Rheumatoid Spondylitis—Its Diagnosis and Treatment, Charley J Smyth, Denver
Treatment of Common Eye Diseases and Management of Eye Injuries, Robert W Hollenhorst, Rochester, Minn
Points to Remember When Treating Severe Epistaxis, Olav E Hallberg, Rochester, Minn
Common Pitfalls of Fracture Treatment, Roger Anderson, Seattle
Cutaneous Malignancies—Common and Uncommon, Henry M Lewis, Denver
Surgery of the Biliary Tract, Howard K Gray, Rochester, Minn
Applied Psychiatry in General Practice, Franklin G Ebaugh, Colorado
Health Education, William W Bolton, Chicago

The Woman's Auxiliary to the South Dakota State Medical Association will meet simultaneously in Rapid City The national auxiliary vice-president, Mrs George Turner, El Paso, Texas, will address the state medical meeting Monday, 9 40 a m, on 'Auxiliary Role in Medicine'

The program of the South Dakota Academy of Ophthalmology and Otolaryngology, Monday, will be presented by Drs Hollenhorst and Hallberg, Rochester, Minn

WEST VIRGINIA

Postgraduate Session—The annual postgraduate session sponsored by the Barbour-Randolph Tucker Medical Society will be held at the Tygart Valley Country Club, near Elkins, June 18 The morning will be devoted to golf The following program will be presented at 2 p m

James B Arey, Philadelphia, Pathological Basis for Respiratory Disturbances in the Newborn
Louis K Alpert, Washington, D C, Collagen Disorders
James G Arnold Jr, Baltimore, Low Back Pain
J Edwin Wood Jr, Charlottesville, Management of Congestive Heart Failure

Dr Guy H Michael, Parsons, will serve as moderator A question and answer period will follow the presentation of each paper A social hour is planned for 5 30 p m, with the Kloman Instrument Company of Charleston as the host Dr Louis A M Krause, professor of clinical medicine, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, will address the annual banquet at 6 30 p m on 'Medicine and the Bible' The Barbour-Randolph Tucker Medical Society, of which Dr Louis H Neffien, Elkins, is president, has extended a cordial invitation to all members of the West Virginia State Medical Association to attend the meeting

GENERAL

Meeting of Physical Therapists—The annual conference of the American Physical Therapy Association will be held at the Baker Hotel, Dallas, Texas, June 15 19 The theme for the program will be "The Patient—His Evaluation and Program for Rehabilitation"

Myasthenia Gravis Meeting—The Medical Board of the Myasthenia Gravis Foundation, Inc. (480 Lexington Ave., New York 17), under the chairmanship of Dr Henry R Viets, Boston, will hold its first meeting in Atlantic City on the evening of June 14 The meeting will be preceded by a reception and dinner at the Hotel Claridge

Conference on Growth—The Society for the Study of Development and Growth has received a grant of \$1,500 from the National Science Foundation in partial support of a symposium on specificity in development to be held at the University of New Hampshire, Durham, June 19-22. The American Cancer Society, the National Cancer Institute, and the National Research Council are also supporting the symposium. The conference will include discussions of such subjects as the manufacture of proteins in the body, the part played by enzymes in development of cells and organs, and the influence of hormones on development of the embryo. The meetings will be open to all interested scientists.

United Cerebral Palsy Appoints Medical Director—Dr. Glendon L. Brooks, associate professor of pediatrics, University of Pittsburgh School of Medicine, has been appointed the first full-time medical director of United Cerebral Palsy, for which he has been serving as medical consultant. He was formerly affiliated with the Harvard Medical School and the Children's Medical Center in Boston, Central Maine General Hospital in Lewiston, and University of Pennsylvania School of Medicine and Children's Hospital in Philadelphia. In Pittsburgh he has been coordinator of hospitals and clinics at the University of Pittsburgh, professor of hospital administration in the Graduate School of Public Health, associate physician at the Children's Hospital, and consultant in charge of pediatrics at Montefiore Hospital.

Society News—The Southwest Allergy Forum will meet at the Hotel Muehlebach, Kansas City, Mo., June 14-16 under the presidency of Dr. Orval R. Withers of that city. The sessions will be devoted primarily to papers on practical aspects of allergy. —Dr. Randall G. Sprague, associate professor of medicine at the Mayo Foundation and consulting physician at the Mayo Clinic, Rochester, Minn., a diabetic since childhood, was elected president of the American Diabetes Association at its annual meeting in New York City. Dr. Sprague, the first diabetic to hold this office, addressed a free public meeting open to diabetics, their families, and friends, on "The Art of Living with Diabetes," in which he described his 30 years' experience as a diabetic, as a physician treating diabetics, and as a scientist studying diabetes.

Neurologists Meet in Atlantic City—The American Neurological Association will hold its annual meeting June 15-17 at the Hotel Claridge, Atlantic City, N. J. Dr. Hans H. F. Reese, Madison, Wis., will deliver the presidential address Monday at 9 a. m. At 8 p. m. the following symposium on neurological education will be held in Trimble Hall:

Philosophy of a Medical School Department of Neurology Roland P. Mackay, Chicago
Content of the Neurological Course Russell N. De Jong, Ann Arbor, Mich.
Techniques Adolph L. Saks, Iowa City
Organization of a Neurological Department in a Medical School H. Houston Merritt, New York
Graduate and Postgraduate Training Henry W. F. Woltman, Rochester, Minn.

The Tuesday morning session will be devoted to 10 presentations with moving picture demonstrations (board room), including results of electroencephalograms, pneumoencephalograms, carotid angiography, and attempts at dural sinus visualization in the case of the Brodie craniopagus twins. The annual dinner for members of the association and guests will be held Tuesday, 7 p. m. The American Association of Neuropathologists will hold its meeting Sunday, June 14, at the Hotel Claridge.

Medical Librarians Meet in Salt Lake City—The annual meeting of the Medical Library Association, Inc., will be held at the Newhouse Hotel, Salt Lake City, June 16-19. At the opening session Tuesday 2 p. m. Drs. John Z. Bowers, dean, University of Utah College of Medicine, and Kenneth B. Castleton, president, Utah State Medical Association, will welcome the delegates. "Methods of Investigation of Human Inheritance" will be discussed by Dr. Frank H. Tyler and Fayette E. Stephens, Ph.D., University of Utah. The medical school group will meet at 8 p. m. in the Franciscan Room. "Medical School Library Administration" will be discussed by Frank A. Lundry, M.A., director of libraries, University of

Nebraska, and "The Role of the Medical Library in the Medical School Curriculum" by Chauncey D. Leake, Ph.D., vice-president, University of Texas Medical Branch, Galveston. On Wednesday at 3:30 p. m. Dr. Ralph T. Richards, Salt Lake City, will present "The Development of Medicine in Utah." The annual banquet will be held in the Bonneville Room at 7 p. m. Dr. C. H. Hardin, Branch, University of Utah College of Medicine, will be the speaker at luncheon Thursday, 12:30 p. m. in the University of Utah Union Building ballroom. At 2:15 p. m. a film, "Seizure," will be shown in the theater of the VA Hospital, Fort Douglas. Introduction and comments will be made by Dr. Madison H. Thomas, University of Utah. Dr. Sanford V. Larkey, Baltimore, chairman, American Documentation Institute, will participate in the general session on national and international activities Friday, 9 a. m., in the Gold Ballroom.

Prevalence of Poliomyelitis—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories, and possessions in the weeks ended as indicated:

Area	May 30, 1953			May 24, 1952 Total
	PAR	NP	NS	
United States	61	54	83	145
New England States				
Maine	1			2
New Hampshire				
Vermont				
Massachusetts	2	1	1	1
Rhode Island				
Connecticut			1	
Middle Atlantic States				
New York	4		7	4
New Jersey	1			1
Pennsylvania			1	2
East North Central States				
Ohio	1		1	
Indiana			5	
Illinois			2	
Michigan	1	5	1	8
Wisconsin			2	2
West North Central States				
Minnesota	3		2	2
Iowa		3		1
Missouri	3	2		2
North Dakota				
South Dakota			1	
Nebraska	2	1		1
Kansas				2
South Atlantic States				
Delaware				1
Maryland	1			
District of Columbia			1	
Virginia	4			
West Virginia	1	2	1	2
North Carolina	1	1		1
South Carolina				1
Georgia			1	2
Florida	2		3	4
East South Central States				
Kentucky	3			1
Tennessee		2	5	2
Alabama			11	
Mississippi			4	5
West South Central States				
Arkansas	2			1
Louisiana	2	3		3
Oklahoma		1	2	7
Texas	13	13	21	47
Mountain States				
Montana				
Idaho				4
Wyoming				
Colorado			4	1
New Mexico				
Arizona	2		1	4
Utah			2	
Nevada				
Pacific States				
Washington				5
Oregon	2			2
California	10	20	3	24
Territories and Possessions				
Alaska				
Hawaii			1	3
Puerto Rico	1			

PAR = paralytic NP = nonparalytic NS = type not stated

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr George F Lull, 535 North Dearborn St Chicago 10, Secretary
 1953 Clinical Session, St Louis Dec 1-4
 1954 Annual Session, San Francisco, June 21-25
 1954 Clinical Session, Miami Florida Nov 30-Dec 3
 1955 Annual Session, Atlantic City, N J, June 6-10

ALASKA TERRITORIAL MEDICAL ASSOCIATION Sitka July 15-17 Dr William P Blanton P O Box 2569 Juneau Secretary

AMERICAN GYNECOLOGICAL SOCIETY Lake Placid Club Lake Placid N Y, June 15-17 Dr John I Brewer 104 South Michigan Ave Chicago Secretary

AMERICAN NEUROLOGICAL ASSOCIATION Hotel Claridge Atlantic City N J June 15-17 Dr H Houston Merritt 710 West 168th St New York 32 Secretary

AMERICAN ORTHOPEDIC ASSOCIATION The Homestead Hot Springs Va June 20-July 1 Dr George O Eaton 4 East Madison St Baltimore 2, Secretary

AMERICAN VETERINARY MEDICAL ASSOCIATION Royal York Hotel Toronto Canada July 20-23 Dr J G Hardenbergh, 600 South Michigan Blvd Chicago 5 Executive Secretary

IDAHO STATE MEDICAL ASSOCIATION Sun Valley June 14-17 Dr Robert S McKean 305 Sun Bldg Boise Secretary

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WEST VIRGINIA STATE MEDICAL ASSOCIATION The Greenbrier White Sulphur Springs July 23-25 Mr Charles Lively P O Box 1031 Charleston 24 Executive Secretary

FOREIGN

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CONGRESS OF THE INTERNATIONAL SOCIETY OF ANGIOLOGY Lisbon Portugal Sept 18-20 Dr Henry Haimovici 105 East 90th St., New York 28 N Y U S A Secretary

CONGRESS OF THE INTERNATIONAL SOCIETY OF SURGERY Lisbon Portugal Sept. 14-20 Dr L. Dejardin 141 rue Belliard Brussels Belgium General Secretary

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INTERNATIONAL CONGRESS OF ELECTROENCEPHALOGRAPHY AND CLINICAL NEUROPHYSIOLOGY Boston Mass U S A Aug 18-21 Dr Robert S Schwab Massachusetts General Hospital, Boston 14 Mass U S A Secretary-General

INTERNATIONAL CONGRESS OF THE EUROPEAN SOCIETY OF HAEMATOLOGY Amsterdam Holland Sept 8-12 Dr M C Verloop Mallesinghe 15 Utrecht Holland Secretary

INTERNATIONAL CONGRESS ON GENETICS Bellagio Italy August 24-31 Prof C Barigozzi Istituto de Genetica Università de Milano 10 via Celoria Milan Italy Secretary

INTERNATIONAL CONGRESS OF HIPPOCRATIC MEDICINE Evian France Sept. 3-6 Prof P Delore 13 rue Jarente Lyons France Secretary-General.

INTERNATIONAL CONGRESS FOR HISTORY OF SCIENCE Jerusalem Israel August 3-7 Prof F S Bodenheimer Hebrew University Jerusalem Israel President

INTERNATIONAL CONGRESS OF HYDROCLIMATISM AND THALASSOTHERAPY, Dubrovnik Yugoslavia May 8-16 1954 Prof C Plavsic Zeleni Venac 1, Belgrade Yugoslavia Secretary General

INTERNATIONAL CONGRESS OF INTERNATIONAL COLLEGE OF SURGEONS Sao Paulo Brazil April 26-May 2 1954 Dr Max Thorek 1516 Lake Shore Drive Chicago Illinois U S A Secretary-General

INTERNATIONAL CONGRESS OF LOGOPEDICS AND PHONiatrics Milan and Stresa Italy Sept 1-7 Dr Deso A Weiss 115 East 86th St New York 28 N Y U S A General Secretary

INTERNATIONAL CONGRESS ON MEDICAL LIBRARIANSHIP London England July 20-25 Mr W R LeFanu 7/6 London School of Hygiene and Tropical Medicine Keppel Street London WC1 England Chairman.

INTERNATIONAL CONGRESS ON MENTAL HEALTH University of Toronto Toronto Ontario Canada Aug 14-21 1954 For information write Executive Officer International Congress on Mental Health 111 St. George St. Toronto Ontario Canada

INTERNATIONAL CONGRESS OF MICROBIOLOGY Rome Italy, Sept 6-12 For information write Dr V Puntoni Citta Universitaria Rome Italy

INTERNATIONAL CONGRESS ON OBSTETRICS AND GYNECOLOGY Geneva Switzerland July 26-31 1954 Dr H. de Watteville Maternité Hôpital Cantonal Geneva Switzerland President.

INTERNATIONAL CONGRESS OF PAEDIATRICS Havana Cuba Oct 12-17 Prof Felix Hurtado 5a Avenue 124 Miramar Havana Cuba President.

INTERNATIONAL CONGRESS OF RADIOLOGY Copenhagen Denmark July 19-25 Professor Flemming Norgaard 10 Oster Voldgade Copenhagen K Denmark Secretary General.

INTERNATIONAL CONGRESSES OF TROPICAL MEDICINE AND MALARIA Istanbul Turkey Aug 28-Sept 4 Professor Dr Ihsan Sükrü Aksel, Tunel Meydam Beyoglu Istanbul Turkey General Secretary

INTERNATIONAL CONVENTION OF X RAY TECHNICIANS, Royal York Hotel Toronto Canada June 28-July 2 For information write Miss Beatrice Hurley RT Registrar St. Catherine Hospital East Chicago Ind., U S A

INTERNATIONAL GERONTOLOGICAL CONGRESS London and Oxford England July 12-22 1954 Prof R E Tunbridge General Infirmary Department of Medicine The University Leeds England President

INTERNATIONAL LEPROSY CONGRESS Madrid Spain Oct. 3-10 Dr Felix Contreras Moreto 15 Madrid Spain Secretary

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INTERNATIONAL PSYCHO-ANALYTICAL CONGRESS Bedford College Regent's Park London NW1 England July 26-30 Dr Ruth S Eissler 285 Central Park West New York 24 N Y Hon Secretary

INTERNATIONAL SOCIETY FOR THE STUDY OF BIOLOGICAL RHYTHMS Basle Switzerland Sept 18-19 For information write Prof Dr F Georgi Neurologische Universitäts Poliklinik Socinstrasse 55 Basle Switzerland

INTERNATIONAL VETERINARY CONGRESS Stockholm Sweden Aug 9-15 Prof Axel Isaksson Institute of Veterinary Medicine Stockholm 50 Sweden Secretary

IRISH MEDICAL ASSOCIATION Waterford Ireland July 1-4 Dr P J Delaney 10 Fitzwilliam Place Dublin Ireland Medical Secretary

LATIN AMERICAN CONGRESS OF OTORHINOLARYNGOLOGY Caracas Venezuela, Feb 21-25 1954 Dr Victorino Marquez Reveron Centro Medico Caracas, Venezuela Secretary-General.

PACIFIC SCIENCE CONGRESS Quezon City and Manila Philippines Nov 16-28 Dr Patrocinio Valenzuela College of Pharmacy University of the Philippines Quezon City Philippines Secretary-General

PAN AMERICAN CONGRESS OF THE MEDICAL PRESS, Buenos Aires Argentine, July 12-16 Secretaría del Congress 763 Uruburu Buenos Aires Argentine.

PAN AMERICAN CONGRESS OF OTORHINOLARYNGOLOGY AND BRONCHESOPHAGOGY Mexico D F Mexico, Feb 28-March 4 1954

SECTIONAL MEETING AMERICAN COLLEGE OF SURGEONS London England May 17 19 1954 Dr Michael L. Mason 40 East Erie St. Chicago 11, Ill U S A Secretary

WORLD CONFERENCE ON MEDICAL EDUCATION British Medical Association House Tavistock Square WC1 London England Aug 22 29 Secretary World Medical Association 2 East 103d St New York 29 N Y U S A

WORLD CONGRESS OF THE WORLD CONFEDERATION FOR PHYSICAL THERAPY London England Sept 7 12 Miss M J Neilson Chartered Society of Physiotherapy Tavistock House South Tavistock Square London WC1 England Secretary

WORLD MEDICAL ASSOCIATION The Hague Netherlands Aug 31 Sept. 7 Dr Louis H Bauer 2 East 103d St New York 29 N Y Secretary General.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

ALABAMA Examination Montgomery June 23 25 Sec Dr D G Gill 537 Dexter Ave., Montgomery

ARKANSAS * Regular Examination. Little Rock June 18 19 Sec Dr Joe Verser Harrisburg Homeopathic Examination Little Rock April 6 Sec Dr Carl S Bungart 105 North 14th St Ft Smith Eclectic Little Rock June 4-5 Sec Dr Frank C Smith 2301 Broadway Little Rock

CALIFORNIA San Francisco June 22 25 Asst Sec Mr Wallace D Thompson 1020 N Street Sacramento 14

COLORADO * Reciprocity Denver July 14 Final date for filing applications is June 12 Exec Sec Mrs B H. Hudgens 831 Republic Bldg Denver 2

CONNECTICUT * Regular Examination. Hartford July 14-15 Sec Dr Creighton Barker 160 St Ronan St New Haven Homeopathic Derby July 14-15 Sec Dr Donald A Davis 38 Elizabeth St Derby

DELAWARE Dover July 14-16 Sec Dr Joseph S McDanel 229 South State St Dover

FLORIDA * Jacksonville June 28 30 Sec Dr Homer Pearson 701 Dupont Bldg Miami

GEORGIA Examination Atlanta and Augusta June 9 10 Reciprocity Atlanta, June Sec Mr R C Coleman 111 State Capitol Atlanta

GUAM The Commission on Licensure will meet whenever a candidate appears or submits his credentials Ex Sec Dr Austin W Matthias Agaña.

HAWAII Examination Honolulu July 13 15 Sec Dr I L. Tilden 1020 Kapiolani St Honolulu

IDAHO Boise July 13 15 Exec Sec Mr Armand L. Bird 364 Sonna Bldg, Boise

ILLINOIS Chicago July 7 9 Supt of Regis Mr Fredric B Selcke Capitol Bldg Springfield

INDIANA Examination Indianapolis June 23 25 Ex. Sec Miss Ruth V Kirk 538 K of P Bldg Indianapolis

IOWA * Examination Iowa City June 15 17 Sec, Dr M A Royal 506 Fleming Bldg Des Moines

KANSAS Kansas City June 10-11 Sec Dr O W Davidson 864 New Brotherhood Bldg Kansas City

KENTUCKY Examination Louisville June 8 10 Sec Dr Bruce Underwood 620 South Third St Louisville 2

MAINE Reciprocity and Examination Augusta July 14-15 Sec Dr Adam P Leighton 192 State St Portland

MARYLAND Examination Baltimore June 16 19 Sec Dr Lewis P Gundry 1215 Cathedral St Baltimore 1

MASSACHUSETTS Examination Boston July 14 17 Sec Dr Robert C Cochrane Room 37 State House Boston 33

MICHIGAN Examination. June 10 12 Ann Arbor and Detroit Sec Dr J Earl McIntyre 201-4 Hollister Bldg. Lansing.

MINNESOTA * Reciprocity St Paul May 22 23 Examination St Paul June 16-18 Sec Dr J F Du Bois 230 Lowry Medical Arts Bldg St Paul

MISSISSIPPI Jackson June 22 24 Sec Dr Felix J Underwood Old Capitol Bldg Jackson 113

MONTANA Helena Oct 5 Sec Dr S A. Cooney 214 Power Block Helena

NEBRASKA * Examination Omaha June 15 17 Director Mr Husted K. Watson, Room 1009 State Capitol Bldg Lincoln 9

NEW HAMPSHIRE Concord Sept. 9 Sec Dr John S Wheeler 107 State House Concord.

NEW JERSEY Trenton June 16-19 Sec Dr Earl S Hallinger 28 West State St Trenton

NEW MEXICO * Oct. 12 13 Santa Fe Sec R. C. Derbyshire 227 E. Palace Ave Santa Fe.

NEW YORK Albany Buffalo New York and Syracuse June 23 26 Sec., Dr Stiles D Ezell 23 S Pearl St. Albany 7

NORTH CAROLINA Examination. Raleigh June 22 25 Reciprocity Raleigh, June 23 Sec Dr Joseph J Combs 716 Professional Bldg Raleigh

NORTH DAKOTA Grand Forks July 8 11 Sec Dr C J Glaspel Grafton. OHIO Examination Columbus June 15 17 Reciprocity Columbus July 7 Sec Dr H M Platter 21 W Broad Columbus 15

OKLAHOMA * Examination Oklahoma City June 10-11 Sec Dr Clinton Gallaher 813 Braniff Bldg Oklahoma City

OREGON * Examination Portland July 9 10 Reciprocity Portland July 24 Exec Sec Mr Howard I Bobbitt 609 Falling Bldg., Portland

PENNSYLVANIA Examination Philadelphia and Pittsburgh July Act. Sec., Mrs Margaret G Steiner, Box 911 Harrisburg

RHODE ISLAND * Providence July 2 3 Administrator of Professional Regulation Mr Thomas B Casey 366 State Office Bldg Providence

SOUTH CAROLINA Columbia June 22 24 Sec Mr N B Heyward 1329 Blandling St Columbia

SOUTH DAKOTA * Rapid City June 17 18 Exec Sec Mr John C. Foster 300 1st National Bank Bldg Sioux Falls

TENNESSEE * Nashville June 10-11 Memphis June 17 18 Sec Dr H W Qualls 1635 Exchange Bldg. Memphis

TEXAS * Fort Worth June 22 24 Sec Dr M. H. Crabb 1714 Medical Arts Bldg Ft Worth 2

UTAH Examination Salt Lake City July Asst. Dir Mr Frank E. Lees 324 State Capitol Bldg Salt Lake City

VERMONT Burlington June 15 17 Sec Dr F J Lawliss Richford

VIRGIN ISLANDS Examination St Thomas June 10 11 Sec Dr Earle M. Rice Box 8 St. Thomas

VIRGINIA Examination and Reciprocity Richmond June 17 20 Address Secretary Board of Medical Examiners 631 First St S W Roanoke

WASHINGTON * Seattle July 12 15 Sec Mr Edward C Dohm Department of Licenses Olympia

WEST VIRGINIA Charleston July 13 15 Sec, Dr N H. Dyer State Office Bldg Charleston 5

WISCONSIN * Examination Milwaukee July 14-16 Sec Dr A. G. Koehler 46 Washington Blvd Oshkosh

WYOMING Oral. Reciprocity Cheyenne June 8 Sec, Dr Franklin D Yoder State Office Bldg Cheyenne

PUERTO RICO Reciprocity Santurce Aug 4 Sec Mr Luis Cueto Coll Box 9156 Santurce

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA On application Juneau or other towns in Territory as decided by Board Reciprocity On application. Sec Dr C. Earl Albrecht Box 1931 Juneau

ARIZONA Tucson June 16 Sec Mr Herbert D Rhodes University of Arizona Tucson

COLORADO Examination Denver Sept. 9 10 Sec Dr Esther B Starks 1459 Ogden St Denver 18

CONNECTICUT Examination New Haven June 13 Exec Asst. Miss M G Reynolds 110 Whitney Ave New Haven 10

DISTRICT OF COLUMBIA Examination. Washington Oct 19 20 Sec Dr Daniel L. Seckinger 4130 E Municipal Bldg Washington

IOWA Des Moines July 14 Sec Dr Ben H. Peterson Coe College Cedar Rapids

NEVADA Reno July 7 Sec Mr Frank Richardson University of Nevada Reno

NEW MEXICO Santa Fe June 21 Sec Mrs Marguerite Cantrell P O Box 1592 Santa Fe

TENNESSEE Memphis July 2 3 Sec Dr O W Hyman 874 Union Ave Memphis.

TEXAS Examination Austin October Chief Clerk Mrs. Sandra Allen 407 Perry Brooks Bldg Austin.

WASHINGTON Examination. Seattle July 8-9 Sec Department of Licenses Mr Edward C Dohm Olympia

WISCONSIN Examination Milwaukee June 13 Final date for filing application is June 6 Madison Sept. 19 Final date for filing application is Sept. 11 Sec Dr W H Barber 621 Ransom St. Ripon

* Basic Science Certificate required

DEATHS

Longcope, Warfield Theobald Ⓢ Lea, Mass, professor emeritus of medicine at his alma mater, died at his home on Cornhill Farm April 25, aged 76, of emphysema. Dr Longcope was born in Baltimore March 29, 1877, and received his M D degree from Johns Hopkins University School of Medicine in Baltimore in 1901. He then spent 10 years in Philadelphia, as resident pathologist of the Pennsylvania Hospital, 1901-1904, as director of the Ayer Clinical Laboratory, 1904-1911, and as assistant professor of applied medicine at the University of Pennsylvania School of Medicine from 1909 to 1911. In the autumn of 1911 Dr Longcope moved to New York and during the next 10 years filled important positions at Columbia University and the Presbyterian Hospital simultaneously. He was an associate professor, 1911-1914, Bard Professor of Applied Medicine 1914-1921 at Columbia, and during the same period an associate visiting physician, then director of medical service at the Presbyterian Hospital. In 1934 he was elected a member of the board of scientific directors of the Rockefeller Institute for Medical Research in New York City and in 1939 was elected president. In 1922 he became professor of medicine at Johns Hopkins University School of Medicine in Baltimore and retired in June, 1946, after 24 years affiliation with the institution. For a short time in 1922 he was a professor of clinical medicine at Cornell University Medical College in New York. During World War I he served in the medical division of the Office of the Surgeon General and with the American Expeditionary Forces. He was a specialist certified by the American Board of Internal Medicine, an Associate Fellow of the American Medical Association formerly vice-president and president of the Association of American Physicians, which in 1948 awarded him the George M Kober medal for his contribution to medicine and medical education, and formerly vice president of the American Association for the Advancement of Science. He was a member of the American Society for Clinical Investigation, American Clinical and Climatological Association, National Academy of Sciences, American Society for Experimental Pathology, New York Academy of Medicine, American Academy of Arts and Sciences, and the Harvey Society, fellow of the American College of Physicians, an honorary member of the Société des Hôpital aux de Paris, and Royal Society of Medicine, and an honorary fellow of the Scandinavian Congress for Internal Medicine and the College of Physicians of Philadelphia. In 1934 Dr Longcope received the honorary degree of doctor of laws from St John's College in Annapolis, Md, in 1941 the degree of doctor of science from the University of Rochester in Rochester, N Y, and in 1945 the Docteur "honoris causa," University of Paris. Dr Longcope's own extensive researches were conducted in the fields of clinical medicine and pathology.

Gray, Irving Ⓢ Brooklyn, born in New York City in 1892, University and Bellevue Hospital Medical College, New York, 1913, specialist certified by the American Board of Internal Medicine, member of the American Gastro Enterological Association, American Public Health Association, and the Industrial Medical Association. fellow of the American College of Physicians, during World War I served in the medical corps, consulting physician, Brooklyn State and Coney Island hospitals in Brooklyn, Sea View Hospital in Staten Island, St. Joseph Hospital in Far Rockaway, Long Beach (N Y) Memorial Hospital, and Rockaway Beach (N Y) Hospital, died April 21, aged 60.

Howles, James Kirby Ⓢ New Orleans born in Memphis, Tenn, Jan 5, 1898. University of Cincinnati College of Medicine, 1929, professor of dermatology and syphilology and head of the department of Louisiana State University School of Medicine, specialist certified by the American Board of Dermatology and Syphilology, member of the American Academy of

Dermatology and Syphilology, fellow of the American College of Physicians, affiliated with Southern Baptist Hospital, Touro Infirmary, Charity Hospital of Louisiana, Hotel Dieu, and Mercy Hospital Soniat Memorial, author of "Synopsis of Clinical Syphilis", died April 2, aged 55, of coronary thrombosis.

Albrecht, Herman Fred Ⓢ Detroit, Detroit College of Medicine and Surgery, 1916, died Feb 4, aged 59.

Bartee, Luke Harvey, Port St Joe, Fla, University of Georgia Medical Department, Augusta, 1899, died Feb 16, aged 81, of bronchopneumonia.

Bass, Harris Hartwell Ⓢ Henderson, N C, University of Pennsylvania School of Medicine, Philadelphia, 1928, died recently, aged 50.

Carman, Richard Perry Ⓢ Baltimore, University of Maryland School of Medicine, Baltimore, 1901, died Feb 3, aged 85, of uremia.

Corpening, Flave Hart, Horse Shoe, N C, Jefferson Medical College of Philadelphia, 1928, died March 7, aged 50.

Cox, Harold Crisp Ⓢ Hightstown, N J University of Pennsylvania School of Medicine, Philadelphia, 1926, past president of the Mercer County Medical Society on the staffs of St Francis Hospital in Trenton and the Princeton (N J) Hospital, died in the University of Pennsylvania Hospital in Philadelphia, Feb 13, aged 52, of heart failure and hypertension.

Cruikshank, Omar Trees, Pittsburgh, University of Pennsylvania Department of Medicine, Philadelphia, 1901, died in VA Hospital, Aspinwall, recently, aged 78.

Eshleman, Lindley Heath Ⓢ Marion, Ind, Kentucky School of Medicine, Louisville, 1896, an Associate Fellow of the American Medical Association, at one time city health officer, past president of the Grant County Medical Society, past president of the Marion City Board of Health, of which he was secretary affiliated with Marion General Hospital, died in Robert W Long Hospital, Indianapolis, Feb 28, aged 82, following an operation for gastric ulcer.

Hogan, George Archibald Ⓢ Birmingham, Ala, Birmingham Medical College, 1896, served on the faculty of his alma mater; died Feb 21, aged 81, of pulmonary embolism.

Hooper, Vernon Jay, Los Angeles, Michigan College of Medicine and Surgery, Detroit, 1898, served during the Spanish-American War and World War I, for many years practiced in Detroit, died Feb 7, aged 82, of bronchopneumonia.

Janney, Francis White Ⓢ Baltimore, University of Maryland School of Medicine, Baltimore, 1905, an Associate Fellow of the American Medical Association affiliated with Baltimore Eye Ear and Throat Hospital, on the staff of the Cambridge (Md) Hospital, died Feb 1, aged 70, of heart failure.

Kahle, William D, Falls Mills, Va, College of Physicians and Surgeons, Baltimore, 1911, died Feb 4, aged 68, of coronary occlusion.

Klein, Rose Herchman, Hartford, Conn, Woman's Medical College of Pennsylvania, Philadelphia, 1940, certified by the National Board of Medical Examiners, member of the American College of Allergists, affiliated with Mount Sinai Hospital, died recently, aged 50.

Lindsay, Samuel Sebastian, Manchester, Iowa Bellevue Hospital Medical College, New York, 1891, died recently, aged 86, of cerebral thrombosis, chronic lymphatic leukemia, and arteriosclerosis.

Lurie, Sophie Arkadyevna Ⓢ Los Angeles, University of St Vladimir Faculty of Medicine, Kiev, Russia, 1913, member of the American Academy of Dermatology and Syphilology, died recently, aged 70, of carcinoma of the stomach.

McCubbin, Hardy Louis, Sacramento, Calif., College of Physicians and Surgeons of San Francisco, 1899, at one time physician in charge of El Reposo Sanitarium in Reno, Nev. died Feb. 26, aged 88, of cancer.

McCulloch, Horace Dwight, Toronto, Ohio, Ohio Medical University, Columbus, 1906, served as school physician and health officer, affiliated with Ohio Valley Hospital, Steubenville, died Jan. 20, aged 83, of thrombosis of the femoral artery.

McGarity, Joseph Arthur, Athens, Ga., Medical College of Georgia, Augusta, 1916, died in Athens General Hospital Feb. 14, aged 65, of hypostatic pneumonia.

McLean, Daniel Calvin, Blytheville, Ark., University of Nashville (Tenn.) Medical Department, 1910, on the staff of the Walls Hospital, died Feb. 10, aged 68, of thrombosis.

Meany, Thomas Edward ♂ Chicago, Chicago College of Medicine and Surgery, 1909, fellow of the American College of Surgeons, formerly on the faculty of Loyola University School of Medicine, consulting orthopedic surgeon, Chicago State Hospital, died in St. Anne's Hospital March 21, aged 68, of cerebral hemorrhage and leukemia.

Miniggio, Antonio ♂ Reno, Nevada, Regia Università di Torino Facoltà di Medicina e Chirurgia, Italy, 1900, a captain in the Italian Army during World War I, on the staffs of the Washoe Medical Center and St. Mary's Hospital, where he died March 27, aged 76, of pulmonary embolism following extensive contusion of the thigh and leg.

Mitchell, Carl Apperson ♂ Benton Harbor, Mich., Bennett College of Eclectic Medicine and Surgery, Chicago, 1906, member of the Industrial Medical Association, an Associate Fellow of the American Medical Association, past president of the Berrien County Medical Society, served as city health officer and as a member of the board of education, served overseas during World War I, on the staff of Mercy Hospital, died in Tavares, Fla., March 17, aged 73, of coronary thrombosis.

Olmsted, Austin Orin ♂ Green Bay, Wis., the Hahnemann Medical College and Hospital, Chicago, 1902, past president of the Brown-Kewaunee Door Counties Medical Society, member of the Radiological Society of North America and the American Radium Society, for many years president of the board of education, died Jan. 14, aged 72, of carcinoma of the colon.

Park, William Edwin, Asheville, N. C., Bellevue Hospital Medical College, New York, 1898, served during World War I, died March 9, aged 76, of cerebral thrombosis and arteriosclerosis.

Roberts, David Daniel ♂ Enid, Okla., Hospital College of Medicine, Louisville, Ky., 1906, past president and secretary of the Garfield County Medical Society, member of the American Association of Railway Surgeons, a medical officer during World War I, chief surgeon of Frisco, Rock Island, and Santa Fe railroads served on the staffs of University Hospital and St. Mary's Hospital, where he died March 2, aged 75, of coronary occlusion.

Robison, Claude Alvin ♂ Frankfort, Ind., Indiana University School of Medicine, Indianapolis, 1918, on the staff of the Clinton County Hospital, formerly city councilman, died Feb. 2, aged 60, of cerebral thrombosis.

Rutledge, Harold Hunt ♂ Richmond, Ky., University of Louisville School of Medicine, 1936, served during World War II, member of the American Academy of General Practice, formerly connected with the health department of the state of Kentucky, director of Tate County Health Department and health officer of Whitley and Madison counties, died in the General Hospital, Louisville, Feb. 11, aged 42, of a heart attack.

Schick, Martin F. ♂ Fort Wayne, Ind., University of the City of New York Medical Department, 1882, an Associate Fellow of the American Medical Association, on the staff of Lutheran Hospital, died March 10, aged 92, of heart failure.

Sinning, Charles Edward, Orlando, Fla., Barnes Medical College, St. Louis, 1899, died Feb. 2, aged 77, of a heart attack.

Stith, Robert Boyd Jr. ♂ Florence, S. C., Duke University School of Medicine, Durham, N. C., 1935, certified by the National Board of Medical Examiners, chairman of the city board of health, served during World War II, and for exceptional and courageous conduct under fire on the Anzio Beachhead, Italy, was awarded the Bronze Star, on the staff of the McLeod Infirmary, died Feb. 13, aged 41, of coronary thrombosis.

Sumner, Gordon Sykes ♂ Sylvester, Ga., Atlanta School of Medicine, 1906, served in the Georgia State Legislature for 13 terms in the senate, died in Atlanta March 13, aged 69, of carcinoma of the prostate.

Taylor, William Ivey ♂ Burgaw, N. C., North Carolina Medical College, Davidson, 1902, died March 4, aged 76, of lobar pneumonia.

Teel, Ambrose Wilson ♂ Redlands, Calif., College of Physicians and Surgeons, Keokuk, Iowa, 1895, served during World War I, affiliated with Glendale (Calif.) Sanitarium and Hospital and the Los Angeles General Hospital, died March 24, aged 81, of an injury received in a fall.

Thompson, Clyde Coleman, Delhi, La., Memphis (Tenn.) Hospital Medical College, 1911, died March 19, aged 70.

Tucker, Jesse E., Elizaville, Ind., Physio-Medical College of Indiana, Indianapolis, 1895, died March 10, aged 83.

Wagenhals, Franklin Clark ♂ Columbus, Ohio, Johns Hopkins University School of Medicine, Baltimore, 1913, emeritus professor of neurology at the Ohio State University College of Medicine, member of the American Psychiatric Association, died in Paris, France, March 16, aged 68.

Walker, Lewis Winston, Auburn, Miss., Mississippi Medical College, Meridian, 1909, affiliated with McComb Infirmary, McComb, where he died March 30, aged 72, of acute enterocolitis.

White, Joshua Warren ♂ Norfolk, Va., Medical College of Virginia, Richmond, 1901, specialist certified by the American Board of Ophthalmology and American Board of Otolaryngology, member of the American Academy of Ophthalmology and Otolaryngology and the American Laryngological, Rhinological and Otolological Society, fellow of the American College of Surgeons, served during World War I, on the staff of St. Vincent's Hospital, died in Palm Beach, Fla., March 4, aged 77, of coronary thrombosis.

Widney, John Theodore Bland, Clovis, Calif., Washington University School of Medicine, St. Louis, 1902, died in Fresno March 27, aged 74, of arteriosclerotic heart disease.

Wilbur, Herbert Lincoln ♂ Joplin, Mo., University Medical College of Kansas City, 1908, past president of the Jasper County Medical Society and the Newton County Medical Society, served during World War I, formerly city physician, affiliated with Freeman Methodist Hospital and St. John's Hospital, where he was past president of the staff, and where he died March 15, aged 76, of pulmonary and cerebral thrombosis.

Wilkinson, Michael Robert ♂ Oconomowoc, Wis., Northwestern University Medical School, Chicago, 1893, served as president of the Waukesha County Historical Society and as a director of the Oconomowoc High School, died March 15, aged 88, of chronic myocarditis and arteriosclerosis.

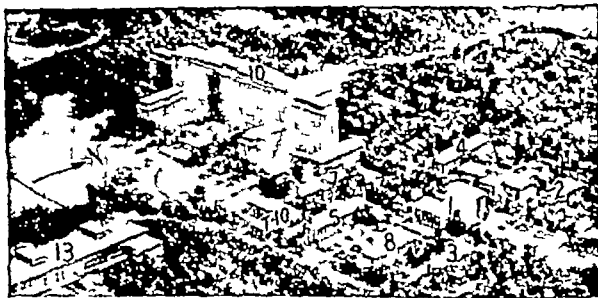
Wolff, Walter Hans ♂ Massapequa, N. Y., Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, Germany, 1922, affiliated with Hospital for Joint Diseases, died in Meadowbrook Hospital, Hempstead, Feb. 7, aged 57, of congestive heart failure.

Yingling, Estey Cecil ♂ Lima, Ohio, Starling Medical College, Columbus, 1906, formerly secretary of the Academy of Medicine of Lima and Allen County, of which he was vice president and president, served during World War I, on the staff of Lima Memorial and St. Rita's hospitals, died Feb. 28, aged 72, of chronic lymphatic leukemia.

GOVERNMENT SERVICES

PUBLIC HEALTH SERVICE

Service Discontinued in Cleveland Hospital—The U S Public Health Service Hospital, Cleveland, will discontinue admitting inpatients immediately, the Public Health Service announced May 20. An outpatient clinic will be established in downtown Cleveland as soon as the patients now receiving care can be discharged or transferred to other hospitals. The action was necessary because of the impending withdrawal of all patients of the Veterans Administration from the general and tuberculosis hospitals of the Service for the fiscal year beginning July 1. The 190 bed P H S Hospital in Cleveland has been operating currently at a daily average census of 139, of which 55 are veterans. Removal of the veteran patients would reduce the daily average count to about 85, or 45% of capacity, and it would be impossible to operate the hospital efficiently and economically with such a low level of utilization. The Public Health Service will continue to provide medical care to merchant seamen, coast guardsmen, and other beneficiaries in the Cleveland area. The clinic replacing the hospital will be staffed by full time personnel. Beneficiaries requiring hospitalization can receive treatment in the P H S Hospital, Chicago. Public Health Service beneficiaries requiring emergency hospitalization in Cleveland will receive it in local hospitals at P H S expense by contract arrangement.



The National Institutes of Health building no. 10 is the new Clinical Center.

New Clinical Research Center—The newly completed Clinical Center of the National Institutes of Health is scheduled to admit research patients early in July. Located at Bethesda, Md., the center is a laboratory and clinical facility containing resources for the care and study of 500 patients. Occupancy will be gradual, it is planned to activate half the beds during the first year of operation and the remaining half during the second year. The Clinical Center will serve the seven National Institutes of Health, which form collectively the principal research arm of the U S Public Health Service. Thus, a clinical research dimension will be added to the Service's laboratory studies, which are concentrated for the most part on the major chronic diseases. For details see THE JOURNAL, Oct 11, 1952, p 541.

Personal.—Dr Erval R Coffey has replaced Dr Richard F. Boyd as the medical director in the U S Department of Health, Education, and Welfare's regional office in Boston. Dr Boyd is being transferred to San Francisco to fill the same position in the department's regional office. Dr Coffey, an officer of the Public Health Service for 29 years, has been in Thailand for the past two years directing the efforts of 23 physicians, nurses, and sanitary engineers who made up the public health division of this country's technical mission to Thailand under the Mutual Security program.

NAVY

Conference on Submarine Medicine—Experts on submarine medicine gathered for a conference May 13 at the Naval Gun Factory, Washington, D C. The medical officers discussed problems associated with current apparatus now used by underwater demolition teams, diving equipment, and the physiological and psychological problems associated with this hazardous Navy work. In attendance were representatives of the Bureau of Medicine and Surgery, Naval Medical Research Institute, Bethesda, Md., the Navy Medical Research Laboratory, Submarine Base, New London, Conn., Underwater Demolition Group No 2, the Force Submarine Medical Officer, Atlantic Fleet, and the Experimental Diving Unit, Naval Gun Factory. Plans were made for another meeting with civilian investigators in the field of submarine medicine. The proposed meeting will be held this fall.

Intern Training at Naval Hospitals—The Surgeon General has announced that of the 176 Navy internships offered senior medical students who will graduate from medical schools throughout the United States in 1953, 169 have formally accepted assignments in Naval hospitals. Their training will begin July 1, 1953, and will be under the Navy's Graduate Medical Training Program. The students will be appointed lieutenants (junior grade) in the Naval Reserve Medical Corps, following graduation and will then be ordered into the active military service and assigned to Naval hospitals approved for intern training by the A M A Council on Medical Education and Hospitals.

MISCELLANEOUS

Food and Drug Administration—Retirement of John J McManus, Atlanta district chief of the Food and Drug Administration, was announced May 31 by Charles W Crawford, Commissioner of Food and Drugs, U S Department of Health, Education, and Welfare. Mr McManus will be succeeded by Dr Kenneth L Milstead, now director of regulatory management in the FDA's Washington office. Dr Milstead was formerly chief of the Cincinnati district. James C Pearson, who has been assistant director of regulatory management since April, 1949, was named by Mr Crawford as the new director. The division of regulatory management handles the preparation of scientific evidence for use in the trial of contested cases. In a tribute to Mr McManus, Commissioner Crawford said, Mr McManus today closes a career of 45 years in behalf of pure, honestly labeled foods, drugs, and cosmetics. It has been one of genuine and fruitful service to the American people.

New Headquarters for National Science Foundation.—The National Science Foundation has moved to a new location, 1520 H Street, NW, Washington 25, D C. The new headquarters are in the old 'Cosmos Club' building recently taken over and renovated by the General Services Administration. The new telephone number is STerling 3 2140. The government telephone code is 1224. The government messenger service code remains Stop 19. There is no change in the Western Union desk-fax call letters QBM. The mailing address will continue to be National Science Foundation, Washington 25, D C.

VETERANS ADMINISTRATION

Personal.—Dr Lee H Schlesinger of Clarksburg, W Va., has been appointed manager of the new VA Hospital in Chicago (West Side), and Dr Walter S Pugh of Providence, R I, has been named manager of the VA Hospital in Erie, Pa. The West Side hospital in Chicago, a 496 bed general medical and surgical installation, is scheduled to open late this summer.

FOREIGN LETTERS

AUSTRALIA

Administration of BCG Vaccine—BCG vaccine has to be obtained from the Commonwealth Serum Laboratories at Melbourne, to which it is necessary to give two weeks' notice. The order has to be placed through the health department in the state concerned. The vaccine is delivered by air, and must be collected immediately from the airplane, placed in a refrigerator, and used within the next 24 to 36 hours. Before a person can receive BCG vaccine it is necessary for him to be Mantoux tested on two occasions at six week intervals. Roentgenography of the chest is an essential preliminary. Four weeks after the BCG vaccine has been given, the reaction is read and noted. Four weeks later another Mantoux test is done, and further Mantoux tests are required at six month intervals. The Commonwealth Serum Laboratories refuse to supply BCG vaccine unless this technique is adhered to. Complete records have to be kept on a special card.

Kodak Finances Medical Research—Between one quarter and one third of the profit of Kodak (Australia) Pty Ltd is now devoted to medical research in Australia. This is due to the philanthropic activities of the joint founder of the Australian organization, Mr Thomas Baker, who died in 1928. A perpetual trust fund was established in that year known as the Thomas Baker (Kodak), Alice Baker, Eleanor Shaw Benefactions Fund. The medical research institute at the Alfred Hospital, Melbourne, bears the name of the benefactors, but is usually known as the Baker Institute of Medical Research. The institute has made valuable contributions to medical knowledge in a wide variety of medical fields. Possibly the most outstanding scientist who has worked in the laboratories of the institute has been Willis, the pathologist, now at Leeds.

Medical Education—Americans have an enthusiasm for education that is lacking in Australians, stated Prof W B MacFarlane, who is professor of physiology in the University of Queensland. He recently returned from a visit to the United States. He reports that 13% of Americans are students at colleges and universities, a much higher proportion than in Australia. At present 1 American in 80 is at a college or a university. In Queensland the number is about 1 in 350. Americans spend \$10 per person per year on higher education compared with about \$1.10 in Queensland. In the United States students spend between \$500 and \$1,000 per year to attend medical schools. In Queensland they pay about \$110.

Rare Chloramphenicol Complications—There has been no evidence in Australia of serious complications following the use of chloramphenicol. On the other hand, this drug has been the mainstay of treatment of gastroenteritis in children, especially in Queensland, where infections by a *Salmonella* microorganism caused a high death rate in an epidemic in 1946-1947. The second epidemic, three years ago, was controlled by the use of chloramphenicol. A watch has always been kept on the blood cell count of children being treated with this drug, and if a tendency for the count to fall is detected the therapy is stopped.

Record Incidence of Diabetes—Sydney has one of the highest diabetes rates in the world, stated Dr R D Lawrence, world authority on diabetes, and physician to the Kings College Hospital in London. Two per cent of Sydney's population have diabetes, compared with one half per cent in England and one and one half per cent in the United States. Dr Lawrence ascribed this high incidence to overeating.

DENMARK

Hospital Costs Then and Now—The Aalborg County Hospital has been studied by E Schiødt for a comparison of the financial years 1913-1914 and 1951-1952. There was a sevenfold increase in the number of patients, a rise from 906 admissions in the first period to 6,518 in the second. Much greater use was made of the hospital beds in the second than in the first period, each bed standing unoccupied only 10 days in the second period, while the corresponding figure for the first period was 85. The total sum spent in the second period was 22 times greater than that spent in the first period, but the expenditure per patient was only 3 times greater, when the purchasing value of the krone in the two periods was taken into account, hospital treatment in reality had become cheaper. To understand this conclusion it should be made clear that the average duration of residence in hospital was reduced from 42 days in the first period to 18 in the second. In the period under review the number of physicians employed by this hospital had risen from 3 to 21, and that of nurses and student nurses from 34 to 136. Yet the number of patients per physician remained practically unchanged, with 302 in the first period and 310 in the second. On the other hand, there was a considerable rise in the number of patients treated per nurse, from 27 to 48. In the first period salaries for the staff accounted for only 17% of the total cost, whereas they did so for 44% of the total cost in the second period.

Between the two periods studied there was a profound change in the indications for admission to hospital. With the discovery of penicillin scarlatina patients need no longer be admitted to hospital. For much the same reason patients with pneumonia have now become rare in hospital. On the other hand, a new group of patients is now being admitted to hospital for treatment with antibiotics and corticotropin (ACTH). The circulation of patients in hospital is now speeded up, with both surgical and medical patients being discharged with a view to their treatment being completed at home by general practitioners. This means greater cooperation between the physicians in hospital and outside it. Schiødt, whose study is published in *Ugeskrift for læger* for March 5, 1953, concludes that the experiences of Aalborg County Hospital may be regarded as typical of other Danish public hospitals.

Medical Students in Place of Iron Lungs—Brief reference has already been made in THE JOURNAL (151:1126 [March 28] 1953) to the part played by medical students when Copenhagen was overtaken by a catastrophic outbreak of poliomyelitis in the autumn of 1952. The 500 beds of the Blegdam Fever Hospital soon proved inadequate and had to be supplemented by numerous beds in other hospitals. Early in the outbreak the Danish and foreign narcosis specialists were unable to cope with the calls made on them for artificial respiration. Towards the end of August the first appeal for volunteers was made to the Medical Students' Council, which was asked to supply 10 students to help with the bag ventilation of patients. Their task was considered so responsible that at first only senior medical students were asked to volunteer. Some 150 did so in September, and they were organized in teams of 4 or 5 students each. By the end of September the supply of senior students proved insufficient, and junior students were called on, with some misgivings. They rose to the occasion, doing excellent service after mastering the necessary technique and precautions to be taken. Early in November the supply of medical students had been exhausted, and Professor Lassen, who is in charge of the Blegdam Hospital, sent out an appeal to the dental students. More than 200 of them answered this appeal, with the result that the time each student had to spend in hospital could be reduced.

Altogether some 1,400 of the some 1,700 medical students in Copenhagen took part in this work and were paid at the rate of about 30 shillings for eight hours. This modest remuneration may seem trifling in comparison with the clinical

experience and insight into the nursing of the sick gained by these students as they worked hour after hour with a patient. In recognition of the services of these students and other members of the staff of the Blegdam Hospital, the municipal authorities of Copenhagen, headed by the Burgomaster Julius Hansen, addressed a letter of thanks to the Danish Medical Association. Some figures published by the burgomaster are a concrete expression of the calls made on the hospital. Though its budget allows for 27 physicians, it actually employs 60, of whom 15 are narcosis specialists. The budget provides for some 265 nurses, whereas the actual number of nurses employed is 625. In October payments made to students amounted to about 150,000 kroner. On Nov 5 some 600 patients with paralytic cases of poliomyelitis were under treatment. These figures tell little of the epic of the medical students of Copenhagen in the autumn of 1952.

SPAIN

International Congress of Therapeutics.—More than 1,000 members attended the Third International Congress of Therapeutics held recently in Madrid. Among the official topics were potassium and the use of radioactive isotopes.

Potassium.—Prof. Z. M. Bacq of Belgium stated that according to Hodgkin's technique the intracellular concentration of potassium in excitable tissues is a passive phenomenon, secondary to the active secretion of sodium ions. It can be proved that the erythrocytes of human blood actively eliminate sodium and passively concentrate potassium. It is known only that they do not function when glycolysis is not normal.

Drs. R. Hazard and J. Hazard of France, in a résumé of their work, stated that the normal potassium of the body has complicated actions, the direction of which may change in accordance with the concentration in which potassium is used up by the body, and also in accordance with the antagonism or synergism that the substance encounters in the body. Potassium intervenes in the metabolism of glycolides, similar to the manner of glucose when the latter is present as a reserve. Potassium takes a part, also, in the metabolism of protids and in regulating the acid base equilibrium. Hypopotassemia causes alkalosis, the control of which depends mainly on the proper secretion of active substances of the suprarenal cortex. Secondly, it is controlled by the suprarenal medullary hormone and by the mechanism of renal elimination. From a pharmacological point of view, potassium can be either useful or dangerous, depending on the concentration in which it acts. Its toxicity varies with the degree of initial concentration of its salts. Potassium is dangerous to the heart when its level of concentration in the blood is so high that it cannot be rapidly lowered by elimination through the kidneys. Potassium, even in small doses, has a stimulating effect on the central nervous system when it contacts the cerebral cells. In higher concentration it produces inhibition of the medullar and bulbar centers. It is closely related to epinephrine and acetylcholine, the chemical intermediary substances that stimulate the autonomic nervous system. Potassium is indispensable to the production of parasympathetic stimulation. The vagal stimulation results in the liberation of both potassium and acetylcholine, whereas the sympathetic stimulation results in liberation of potassium, epinephrine, and some other sympathins. The potassium ion has a biphasic effect on the muscular system. It stimulates liberation of small doses of potassium and prevents liberation of large doses by a mechanism of double circuit between acetylcholine and potassium, each of which stimulates liberation of the other at the level of the muscle. Potassium is indispensable for the contractility of the heart, however, the toxic effect appears when the concentration of potassium is above the useful level. The changes of the electrocardiogram, as caused by either hypopotassemia or hyperpotassemia, are well known. The potassium ion, when in low concentration, favors excitability of the motor nerve fibers by preventing the activity of high concentrations. The inhibitory action easily appears on the sensory nerve fibers, and certain potassium salts increase the activity of local anesthetics. On the smooth fibers of the intestine the potassium ion seems to cause liberation of acetylcholine, potentiation of the tonic effects of this

substance, and stimulation of muscular action. In relation to antagonistic substances, the speakers pointed out that the calcium ion is the most active and the commonest antagonistic substance. It acts on the central nervous system, on the autonomic nervous system, on neuromuscular excitability, and on the heart. The antagonism may even result in changing the effects of digitalis, and as calcium increases potassium decreases.

Drs. G. Bickel and H. C. Plattner of Switzerland reported the results of studies made on all the syndromes of hyperpotassemia and hypopotassemia. The pathogenetic factors, clinical forms, changes seen on the electrocardiogram, and the diseases most commonly complicated by these syndromes were discussed. There is a form of hyperpotassemia of renal insufficiency with oliguria or anuria and other forms in hemolytic and traumatic syndromes, in diabetic coma, and in Addison's disease. There are also different forms of hypopotassemia in diarrheal syndromes, in hypoglycemic coma, in nephritis, in the Cushing's syndrome, and in syndromes caused by administration of large doses of corticotropin, desoxycorticosterone, and cortisone. The forms of hypopotassemia caused by administration of large doses of sodium salts and those that are a complication of pyloric stenosis, of obstruction of the upper segments of the intestine, or that follow an operation, were also discussed.

Prof. F. Rietti of Italy stated that the basal potassium is of clinical value in the majority of cases, although it does not always reflect the actual condition of the intracellular potassium. The syndromes associated with hyperpotassemia are always graver than those associated with hypopotassemia. The changes in the electrocardiogram have a definite clinical value, but the electrocardiogram cannot replace the laboratory determinations of potassium in the blood. The main factors of hypopotassemia are fasting, an insufficient supply of potassium to the body, rapid elimination of the substance through the kidneys, post therapeutic diabetic acidosis, hyperactivity of the suprarenal cortex, vomiting, diarrhea, dilution of the extracellular fluids as a result of administration of solutions that do not contain potassium, and the use of certain drugs. The speaker described some cases of cryptogenetic chronic hypopotassemia, which is very rare. The pathological changes of potassemia are always due to acute diseases.

Drs. E. Jaso and E. Iturriga of Madrid reported results of their investigations conducted on the significance of potassium in pediatric diseases. The symptoms of hypopotassemia in children consist of muscular hypotonia, deep hyporeflexia that in some cases progresses into actual paralysis, meteorism, and paralytic ileus. There are changes in the electrocardiogram, and the figures of potassium in the blood plasma are low. Diarrhea in infants, hypertrophic stenosis of the pylorus, congenital alkalosis with diarrhea, infantile steatorrhea, and bulbar poliomyelitis are specific pediatric diseases that develop with a deficiency of potassium. Potassium therapy is indicated in any of these diseases. The deficiency of potassium in infantile diarrhea is due to (1) a loss of potassium through the feces, vomiting and perspiration, (2) a diminished amount of potassium administered in the diet, or a lack of administration of the substance, (3) administration of salt solutions in therapy of dehydration, and (4) the changes of the intracellular exchange caused by sodium. In the early period of these diseases the amount of potassium in the blood serum is large in about 25% of the cases. The increase is due to liberation of potassium by the tissues. Later, hypopotassemia follows and the amount of potassium in the muscular tissues is small, as found by determinations carried on by the speakers. Some of the children observed by the speakers had potassium therapy in association with the treatment of the given disease. The rest of the children were the controls. The clinical course of the disease was about the same in both groups of children. The electrolyte shock was controlled sooner in patients who had potassium therapy than in the controls. There were early hypoproteinemia and hypoalbuminemia. Total hypoproteinemia developed in children with acute dystrophy. The figures of the gamma globulin fraction increased. The increase was so sharp in certain cases that the figures were four times higher than normal. In patients in either group, namely, those who had potassium therapy and those who did not, the figures of

chloremia were low during shock and normal after it. The hematocrit value and the number of erythrocytes followed the standard of the disease in the given case, without changing with the administration of potassium. From a statistical point of view, the speakers were unable to confirm previous reports in the literature on the good results of potassium therapy in toxic diarrhea of infants. The figures obtained by the speakers in children who had potassium therapy can be superimposed on those observed in the controls (a 13% rate of mortality). In the administration of potassium the speakers followed Darrow's scheme of dosage. They administer the substance either by parenteral or oral route. In certain cases they used the mixture advised by Gosta Davidsen. In toxicosis of infants, the speakers warned against the administration of potassium serum on the first day of the disease because of the fact that hyperkalemia is present on that day. Only when one can prove that there is hypokalemia should potassium serum be given. When the patients show toxic symptoms after therapeutic administration of potassium, the speakers advise to resort to a combined treatment of dextrose, insulin, and calcium.

Drs. Di Guglielmo and Vallecorsi reported results of studies on the contents and distribution of potassium in the body and the techniques of administration of potassium salts. They advised the use of potassium chloride, which contains about 50% potassium, can be sterilized without difficulty, and can be administered by any route. Also, gluconate, citrate, and phosphate can be used. The speakers resorted to the administration of potassium in certain diseases without hypokalemia, namely, in certain cardiac diseases (hypostole, ventricular tachycardia, and extrasystolic arrhythmia), in arterial hypertension (with moderate and uncertain effects), and in certain diseases of the muscles, without hypokalemia. It can also be given as a diuretic, but the administration of the substance is dangerous in cases of oliguria of renal origin, it is frequently given in cases of bronchopulmonary allergy, pleurisy, adenitis, and arthritis, and as a solvent of antibiotics.

Dr. Castro Mendoza reviewed the various techniques used in the determination of potassium. The most exact and sensitive microdetermination is that of precipitation with chloroplatinic acid, which is comparable to the macrogravimetric methods. For clinical uses, the procedures using cobaltinitrite are sufficient, although the limitations of exactness of these procedures are well known. For the final titration, cerimetry or colorimetry of the cobalt ion can be recommended. Spectrometry is not sufficiently precise for common use, although it has a great sensitivity. In photometric evaluations, the flame photometer has the advantage of the rapidity with which the evaluations can be made. This method permits one to work in large series, although its exactness is not as accurate as that of the method of the chloroplatinic acid. Some other methods, such as the precipitation with phospho 12-tungstate dipicrylamine, and others, are still very new and not widely used.

Massive Hormonal Therapy.—Dr. Perez Vitoria of Barcelona suggested changing the term retarded hormonotherapy to slow hormonotherapy. This therapy is indicated when it is advisable to prolong the effect of the hormones. It is also indicated in cases of acute endocrine disturbance and in cases in which it is necessary to reduce the number of injections to make an economical treatment. The retarded forms of hormonal therapy include only insulin, epinephrine, posterior pituitary injection (Pituitrin), testosterone, estrogens, progesterone, androsterone, desoxycorticosterone, cortisone, and corticotropin (ACTH). Frequently its results are much better than those of other ordinary forms of therapy. The preferable form of the substance to be used is microcrystals. The tablets of the substance are to be rejected for implantation.

Dr. N. Pende of Italy reported the results of his studies on the various methods of hormonal therapy. Pende states that the implantation of tablets of crystallized hormone (as restricted to desoxycorticosterone, testosterone, estrone, and progesterone) gives transient results, making it necessary to repeat it several times. Frequently the testosterone tablets are eliminated through the operative wound because of coagulation of the tissues. Tablets of estrogens produce metrorrhagia and the danger of hyperdosification cannot be avoided. The best results of implantation are obtained in cases of Addison's disease, and the most

inconstant results are observed in hypogonadism in men. The speaker stated that the depositing of hormone crystalline suspension offers no advantages over parenteral injections because the velocity and quota of absorption are unknown and in cases of hyperdosage it is not possible to remove a portion of the introduced hormones. The technique of administration of hormonal therapy either by ingestion (preparations of thyroids or of estrogens) or by parenteral route (total extracts or single hormones) is difficult. Frequently the practitioner gives to the patients excessive doses (androgens and estrogens). It is convenient to give small doses to the patients and, especially, to apply topic treatment near the tissues on which the hormones should act (urethra, vagina, breasts, and nasal structures).

Prof. G. Marañón of Spain reported the results of his studies on three problems: (1) the reason for the administration of moderate doses of hormonal therapy, (2) the inconveniences and dangers of the administration of large doses, and (3) the most adequate technique of administration of hormonal therapy. 1. The goal of hormonal therapy is to obtain the maximum results of physiological effects. For these results to be obtained two conditions are necessary, namely, that the dose of hormones administered be of about the same quantity as that of the normal secretion of the glands, and that the time at which the therapy is given be about the same as that at which the given glands are liberating their secretions. The therapy should be given in accordance with the needs of the body and not with an arbitrary schedule. Moderate doses are the most normal. Nearly all the favorable effects that are obtainable from hormonal therapy can be obtained with moderate doses and without therapeutic haste. It is difficult for the physician to discover the exact moment at which the effect of the hormones should be felt, except in certain cases, as in that of insulin in which the time of action is well known. 2. Entirely antiphysiological large doses of hormones may result in the production of unpleasant and harmful effects. In certain instances they may cause hyperfunctional reactions in the corresponding gland, in some other cases they may cause functional changes and even lesions of other endocrine glands, still in other cases they may produce nonspecific and non-glandular pathological disorders, which seem to be due to rupture of the balance of adaptation that the given glandular insufficiency had already created. 3. The most adequate technique for administration of hormonal therapy is the implantation of tablets or the injection of microcrystals, which at the present time should be restricted to a small number of hormones. The reason for the administration of hormones by this technique is that the therapy is of substitution and the effects are similar to the physiological action of the hormones.

Prof. L. de Gennes of Paris discussed hormonal therapy of cancer of the breast. The treatment is palliative and coadjutant when it is resorted to early in the course of the disease, but it does not replace direct surgical treatment or roentgen therapy of the tumor. The speaker stated that hormonal therapy should be administered as complementary treatment, as well as for the prevention of metastasis or else as a palliative measure when metastases have already appeared, in order to slow their growth, diminish pain, and prolong the life of the patient. The effects of ovariectomy on cancer of the breast are better than those of roentgen therapy on the ovary. Ovariectomy diminishes the percentage of recurrences, acts on the bone metastases (especially on the vertebral metastases), and improves the general condition of the patient. The androgens, when administered in large doses, moderately act on the tumor and on the metastases of the soft tissues, but they have energetic effects on the bone metastases and on the pain that these metastases produce. The doses should be large because of the fact that the small doses are almost inactive and are harmful. The estrogens are more active on the tumor of the breast, which may even diminish in size. They are also active on ulcerations, adenopathies and metastases, however, they should be reserved for administration only to old women or to women in well-established menopause. Even in women in these groups the bone metastases are more favorably effected by androgens than by estrogens. Young women with inoperable cancer of the breast should have castration and androgens in massive doses. In men castration and estrogens sometimes give similar results to those obtained in cancer of the prostate, although they are not as constant and dramatic as those observed in

the latter form of cancer. It is difficult to state whether or not the therapy with these hormones has actual prophylactic value and also if the therapy diminishes the number of recurrences when it is given after early operation in cases of cancer of the breast without axillary involvement, however, it seems that preventive androgenic therapy of mastitis prevents cancer transformation in a certain number of cases. Surgical castration improves the prognosis of cancer after late operation, but similar results are obtained from the administration of injections with massive doses of testosterone. The association of both surgical and hormonal therapy gives promising results, although they are not constant and vary with the given case. It is difficult to evaluate the actual effects of hormonal therapy in cancer, which is a disease that is very uncertain and prone to complications of an unpredictable course, the apparent improvement of which is often followed by spontaneous regression of the disease. Hormonal therapy in cancer of the breast is a real improvement, however, the biological mechanism of the improvement of the disease under the effect of the hormones is still unknown. The study of this mechanism will result in the discovery of the origin and course of hormonal cancer.

Radioactive Isotopes—Prof. C. Gil y Gil of Spain reviewed the general subject with a rather pessimistic point of view because of the dangers of improper handling of these substances. The speaker made special reference to the work of American researchers. Radioactive isotopes have not been used very much in Spain.

Prof. A. S. McFarlane of England reported the results of his studies on radioactive isotopes on metabolic conditions, as shown by the results obtained by American researchers. The point of view that the liver is the main organ producing plasmatic proteins is confirmed by the fact that, following the introduction of amino acids marked with radioactive carbon in the arterial blood of the liver of isolated and perfused rats, a normal production of albumin and globulin takes place in the blood. It is observed, by studying the radioactivity of free amino acids and proteins of the plasma of rabbits, that the liver acts rapidly on free amino acids, transforming the greater part of them to plasmatic proteins within two hours, however, if amino acids are introduced in larger quantity to that corresponding to the physiological velocity in the production of proteins, the amino acids in excess are directly oxidized in the tissues. The plasmatic proteins, which are synthesized in the liver in 2 hours, require 12 more hours to diffuse themselves outside of the liver and to reach a uniform concentration in the plasma and in the lymph. Later on, they pass unchanged from the lymph to the cells of the tissues and become slowly oxidized at about the same time they are consumed in the oxidation of the intracellular proteins in the tissues. If an excessive amount of amino acids is given to the tissues, they become stored in the tissues. This period lasts for several weeks, during which time the tissues begin to hydrolyze the excessive amino acids. The proteins of the liquid of ascitis are identical to those of the plasma, and they are in constant equilibrium with the latter through the peritoneal membrane.

Dr. E. E. Pochin of England stated that frequently it is very important to evaluate the distribution of the isotopes in the different parts of the body and to detect them in the organs in which they are stored. He describes the following methods for evaluating the distribution of the isotopes: (1) using a meter for counting the irradiations, which is provided with a lead cylinder for protection and which is very useful in the regulation of the therapy with radioactive gold; (2) using the method used for the treating of hyperthyroidism with radioactive iodine, with a special protected meter; and (3) measuring the outline, which combines some of the advantages of the previously mentioned methods and is of great value in detecting the areas of abnormal concentration of iodine in carcinoma of the thyroids and also for obtaining quantitative tests for the progress of course of the disease.

Dr. M. Tubiana of France discussed the treatment of thyroid diseases by means of radioactive iodine. He reported the results observed in the treatment of 80 patients with hyperthyroidism and 35 patients with cancer of the thyroid. The treatment with radioactive iodine gave excellent results in 75% of the patients with hyperthyroidism. In 55% of the cases the results were obvious after administration of the first dose. The results were incomplete in 11% of the cases and poor in 12% of the

cases. In comparing the clinical results with the doses of radiations given to the patient, the speaker observed that the best results are obtained with a dose varying between 7,000 and 10,000 r, that is a dose of about 0.1 mc of radioactive iodine for every gram of thyroid, as fixed in 24 hours. When rapid results are desired the dose should be greater. This is the case of patients with cardiac diseases in whom the establishment of a lasting hypothyroidism is feared. The speaker did not observe serious accidents, but late accidents may occur. The treatment with radioactive iodine is indicated in all cases of failure and contraindication of surgical treatment, especially in patients with cardiac diseases or with deficiencies, as well as those who cannot stand prolonged chemotherapy and those who refuse to have an operation. The inconveniences and dangers are less, in the majority of the cases, than those of a surgical intervention, however, the speaker advised this treatment only in patients over 35, as there is the possibility of the occurrence of late dangers, which up to now are unknown. The treatment with radioactive iodine is indicated in cases of cancer of the thyroid when the cancerous tissues fix sufficient amounts of iodine. It is necessary to make determinations of iodine and biopsies. Out of a total number of 140 patients with cancer of the thyroid observed by the author the treatment was given to 35 patients, with excellent results in 8 cases. The results of this statistical study show that the number of patients who obtain benefit with this treatment is relatively small.

Dr. J. T. Van der Verff of Holland reported results of the treatment in patients with polycythemia, leukemia, and other disorders of the reticuloendothelial system. The results obtained in the patients observed by the speaker were in disagreement and never curative. A great improvement is observed in patients with polycythemia vera, and the patients enjoy an almost normal life. Radioactive phosphorus, when given with careful observation of the patient and in combination with some other procedures, is of value, although it does not prolong the duration of the span of life of the patient. In some other disorders of the reticuloendothelial system the response of the patients to the treatment varies in different cases. The dangers of radioactive isotopes make it advisable to reserve this treatment only for patients who do not react well to other means.

Dr. P. H. Hahn of the United States discussed the problem of the treatment with radioactive isotopes in tumors and tumoral processes. He considered the use of gold therapy in four different categories: (1) intravenous administration by means of which the reticuloendothelial system is provided with selective irradiation in diffuse diseases of the macrophagic lymphoid system; (2) interstitial use of the colloid; (3) introduction of gold colloids in several cavities of the body; and (4) introduction of gold colloids, sometimes modified, in the tissues or regions of the body. The intravenous administration of manganese and gold colloids is especially efficacious in chronic leukemia. In some cases of Hodgkin's disease the treatment can give palliative results, although they are not definitive. The treatment with interstitial colloidal gold will be very much in use in the near future. It will be resorted to in certain common forms of malignant tumors, such as cervical, mammary, prostatic, testicular, and cranial tumors as well as in other tumors deeply located, as coadjuvant therapy of surgery. At the present time, the intracavitary use of gold colloids is the most popular. The treatment is palliative after surgery. It has been demonstrated that free tumoral cells are susceptible, in experimental conditions, of treatment by means of these procedures. The introduction of protected gold or of protected gold colloids in regions from which tumoral particles are to be eliminated by means of the lymphatic drainage constitutes a potential method of controlling certain types of malignant metastases, especially in cases of carcinoma of the uterus and of bronchial cancer.

The success of this congress constitutes an international homage to Dr. Teófilo Hernandez, professor of therapeutics in the Faculty of Medicine of Madrid for more than 30 years. Dr. Hernandez is the president of the Society of Gastroenterologists of Spain. After the Civil War in Spain, he was politically deprived of his professional activities. He was restituted to his chair by the academic authorities shortly before he reached the age of retirement, according to the law.

CORRESPONDENCE

DIAGNOSTIC USE OF PENTYLENETETRAZOL (METRAZOL) IN ACUTE BARBITURATE POISONING

To the Editor—There is unanimity of opinion that many cases, probably the majority, of acute barbiturate intoxication require only good symptomatic therapy (Koppanyi, T, and Fazekas, J F *Am J M Sc* 224 577, 1952). Numerous pharmacologists and clinicians, however, have demonstrated that, in severe barbiturate poisoning in animals (Tatum, A. L. *Physiol Rev* 19 472, 1939) as well as in humans (Koppanyi, T, and Fazekas, J F *Am J M Sc* 220 559, 1950), certain central analeptics are of lifesaving value. The problem is the selection from the numerous cases of acute barbiturate poisoning of those requiring specific analeptic therapy. The history, barbiturate blood levels, and physical signs cannot always be relied on, in fact, in many instances, the history and blood levels may not be available to the physician and are, sometimes, misleading. Schmidt, in 1945, and Fazekas and Bessman, currently, have noted, in both animals and human beings, a lowered cerebral metabolic rate associated with deep barbiturate coma but not necessarily with light barbiturate anesthesia.

We have introduced the concept that an orientation dose of pentylenetetrazol (Metrazol), when given intravenously to patients with acute barbiturate intoxication, may awaken or cause a return of reflexes in those patients only lightly or

Cerebral Blood Flow and Metabolic Rates Before and After Administration of Pentylenetetrazol

	Cerebral Blood Flow Cc./Min / 100 Gm of Brain	Cerebral Oxygen Con- sumption, Cc./Min / 100 Gm of Brain	Cerebral Arteriovenous Oxygen Difference Vol %
Average normal values *	54.2	3.5	0.47
Before pentylenetetrazol	30.3	0.9	2.92
After pentylenetetrazol (17 hr)	68.8	3.0	6.12

* Previously established for normal subjects

moderately depressed. These patients very often show a permanent improvement after a single orientation dose (5 cc of a 10% solution). If no improvement follows such an orientation dose, the patient should be given more intensive therapy.

We have employed the orientation dose of pentylenetetrazol for many years, and it has proved to be an invaluable guide in outlining subsequent therapy. For example, a 48 year-old man had taken an undetermined amount of a barbiturate intending suicide. He was first seen three hours after ingestion of the drug. He was treated symptomatically, pharyngeal airway oxygen, fluids, and penicillin were administered for 24 hours. After the first 24 hours, the house staff became concerned about his condition because he was still without reflexes, he was comatose, and he did not respond to noxious stimuli. Studies of cerebral blood flow and metabolism were undertaken and showed a marked depression of both values. The patient was then given a 10% solution of pentylenetetrazol intravenously at a slow rate. After the injection of 3 cc, the patient's reflexes returned within five minutes, he lifted his head spontaneously and attempted to speak. From the responses obtained, it became obvious that this patient required only symptomatic therapy. Despite the small amount of pentylenetetrazol given he did not relapse into his former comatose state but continued to improve. In three hours he was fully conscious. Seventeen hours later the cerebral blood flow and metabolism were again determined and were found to be normal (see table).

This case is particularly interesting because not only the physical findings but also the cerebral blood flow and metabo-

lism were indicative of deep (barbiturate) depression, although the response to pentylenetetrazol indicated only a light depression. It is, therefore, suggested that the response of a patient to an orientation dose may be an even more reliable index than the cerebral metabolic rate. If an orientation dose of pentylenetetrazol were universally administered in acute barbiturate poisoning, more reliable statistical information could be gained as to the efficacy of central nervous system stimulants in the treatment of human barbiturate intoxication.

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OPTIC NEURITIS

To the Editor—With respect to the clinical note in THE JOURNAL, April 18 (page 1403), it is not unusual, in patients with cardiovascular disease, to find both anemia and optic neuritis associated with subacute bacterial endocarditis. For example, Friedberg states "Optic neuritis and even choked disk have been described as toxic manifestations of the disease" (that is bacterial endocarditis) (*Diseases of the Heart*, Philadelphia, W B Saunders Company, 1949, p 791). Kauntze has published a report of seven cases of subacute bacterial endocarditis in which optic neuritis occurred (*Brit Heart J* 9 34, 1947). Statements in "Genetics in Ophthalmology" by Sorsby and "Clinical Neuro-Ophthalmology" by Walsh confirm this fact, described first in the classic paper by Falconer entitled "The Importance of Optic Neuritis and Retinal Hemorrhages in the Diagnosis of Chronic Septic Endocarditis" (*Quart J Med* 3 107, 1910).

The omission of reference to these facts from the clinical note should be called to the attention of clinicians who encounter this condition, since, under the circumstances, it is not possible to ascribe optic neuritis to chloramphenicol or to any other drug, on the contrary, it must be considered one of the possibilities to be looked for and treated as part of the disease entity.

MARTIN M FISHER, M D
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PROTEIN SYNTHESIS AND CORTISONE

To the Editor—In the April 18, 1953, issue of THE JOURNAL, an editorial on protein synthesis and cortisone concludes that the effect of cortisone is that of over all suppression of tissue protein synthesis. It is true that, in effect, this is the net result of the administration of this drug to animals. We feel, however, that there is enough evidence to lend support to the statement "Adrenal cortical secretions accelerate protein catabolism by a direct action on the oxidative enzymes for deaminating amino acids." This action has been demonstrated in vitro with supportive in vivo data (*J Biol Chem* 183 11, 1950) and has been repeatedly confirmed (*Ann Rev Physiol* 15 402, 1953). More recent clinical observations in patients with Addison's disease (*J Clin Endocrinol* 13 429, 1953) have supported this thesis by demonstrating a decreased capacity of these patients to metabolize amino acids administered intravenously.

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Postgraduate Continuation Courses for Physicians

Compiled by the Council on Medical Education and Hospitals for the Period July 1, 1953, to Jan 15, 1954

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Postgraduate Continuation Courses for Physicians—July 1, 1953, to Jan 15, 1954

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
ALLERGY			
Cook County Graduate School of Medicine 707 S. Wood St. Chicago 12 Ill.	Personal Course in Allergy	Arranged 6 months full time	\$200.00
	Personal Course in Allergy	Arranged 1 month full time	200.00
	Personal Course in Allergy and Related Conditions	September 23-10 days part time	125.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St. New York 32 N. Y. At Montefiore Hospital	Medicine PM GS Allergy	September 17-December 10 once weekly part time	50.00
New York Medical College, Flower and Fifth Ave. Hospitals 1 E. 104th St. New York 29 N. Y.	Allergy	Arranged 2 months, part time	50.00
New York Polyclinic Medical School and Hospital 315 West 60th St. New York 19 New York	Allergy	Arranged twice weekly, part time	50.00
New York University Post Graduate Medical School 477 First Ave. New York 16 N. Y.	Allergy 115-A	November 9-13 full time	100.00
Albert Einstein Medical Center Southern Division 6th and Reed Sts. Philadelphia 47 Pa.	Allergy	Fall once weekly part time	75.00
ANATOMY			
College of Medical Evangelists 312 N. Boyle Ave. Los Angeles 33 Calif.	Surgical Anatomy	September 28-June 2 twice weekly part time	250.00
	Surgical Anatomy	September 30-June 2 once weekly part time	100.00
University of California Medical Extension 10831 Le Conte Ave. Los Angeles 21 Calif.	Surgical Anatomy	September-December once weekly, part time	75.00
Mercy Hospital San Diego 3 Calif.	Anatomy	Twice weekly 30 weeks part time	None
San Diego County General Hospital and Mercy Hospital San Diego 3 Calif.	Anatomy	October-August part time	44
University of Maryland School of Medicine 29 S. Greene St. Baltimore Md.	General Anatomy 4-	Arranged during academic year, full time	Arranged according to content and duration of course
	Surgical Anatomy	January-June twice weekly 15 weeks	150.00
Joint Committee on Post-Graduate Education 1313 Bedford Ave. Brooklyn 16 N. Y.	Neuroanatomy	October 12 weeks twice weekly part time	100.00
New York Medical College, Flower and Fifth Ave. Hospitals 1 E. 104th St. New York 29 N. Y.	Applied Anatomy for the General Surgeon	Arranged 240 hours part time	375.00
	Anatomy of the Thorax	Arranged 100 hours part time	150.00
	Anatomy of the Abdomen	Arranged part time	150.00
	Applied Anatomy for the Otolaryngologist	Arranged 160 hours part time	275.00
	Applied Anatomy of the Urogenital System	Arranged 130 hours part time	300.00
	Applied Anatomy for the Anesthetist	Arranged 120 hours part time	275.00
New York Polyclinic Medical School and Hospital 315 W. 60th St. New York 19 New York	Anatomy for the Orthopedic Surgeon	Arranged 100 hours part time	150.00
	Anatomy Dissections Demonstrations and Lectures	Arranged part time	200.00
New York University Post Graduate Medical School 477 First Ave. New York 16 N. Y.	411 A Anatomy of the Head and Neck	September 28-December 18 3 days a week part time	90.00
	412 A Anatomy of the Thorax and Its Viscera	January 4-March 26 3 days a week part time	90.00
	413-A Anatomy of the Abdomen	September 28-December 18 3 days a week part time	90.00
	414 A Anatomy of the Female Pelvis	January 4-March 26 3 days a week part time	90.00
Western Reserve University School of Medicine 2109 Adelbert Rd. Cleveland 6 Ohio	Anatomy 11 G	October 1-April 30 arranged 6 days part time	75.00
Hillcrest Medical Center Twelfth St. and Ultee Ave. Tulsa Okla.	Anatomy	Arranged once weekly part time	None
ANESTHESIOLOGY			
College of Medical Evangelists 312 N. Boyle Ave. Los Angeles 33 Calif.	Anesthesiology	4 months intervals of 2 months full time	300.00
University of Southern California School of Medicine 3551 University Ave. Los Angeles, Calif. At Los Angeles County General Hospital	#292 'Anesthesia	September 2-December 2 full time	300.00
American Society of Anesthesiologists Inc. 188 W. Randolph St. Chicago, Ill. At St. Francis Hospital, Hartford, Conn.	Anesthesiology Regional and General	July-October and January 3 months full time	None

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Postgraduate Continuation Courses for Physicians—July 1, 1953, to Jan. 15, 1954—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
ANESTHESIOLOGY—Continued			
Cook County Graduate School of Medicine 707 S Wood St Chicago Ill	Practical Course in Endotracheal Anesthesia	Arranged 2 weeks full time	\$150 00
	Practical Course in Ether Nitrous Oxide Ethylene and Cyclopropane Anesthesia	Arranged 1 month full time	200 00
	Practical Course in Nitrous Oxide and Ether Anesthesia	Arranged 1 month full time	125 00
	Practice Course in Spinal and Intravenous Anesthesia	Arranged 2 weeks full time	150 00
University of Buffalo School of Medicine 24 High St Buffalo N Y	Anesthesia	October 7 14 21 28-November 4 11 18 25-December 2 and 9 10 half days	50 00
	Anesthesia	November 9-13 full time	50 00
New York Medical College Flower and Fifth Ave Hospitals 1 E 106th St New York 29 N Y	Clinical Anesthesiology	Arranged 3 months full time	200 00
New York Polyclinic Medical School and Hospital 345 W 50th St New York 19 N Y	Applied Anesthesia	October and January 3 months full time	300 00
	Anesthetic Technique	October and January 6 weeks full time	100 00
	Regional and Spinal Anesthesia	October and January 6 weeks full time	100 00
New York State Society of Anesthesiologists 137 W 11th St New York 11 N Y At Various hospitals in New York City	Postgraduate Training in Anesthesiology	Arranged continuously throughout year	None
New York University Post Graduate Medical School, 477 First Ave New York 16 N Y	510-A Anesthesiology Endotracheal and Related Methods	August 31 September 15 part time	75 00
	511 A Anesthesiology (for Specialists)	Arranged September June 2 weeks full time	150 00
	512 A Regional Anesthesiology	January 4 January 16 full time	200 00
	513-A Anesthesiology (Graduate Course)	Arranged after September 8 1 year full time	700 00
	514 A	September 11 December 5 part time	200 00
ARTHRITIS			
Tufts College Medical School Postgraduate Division 80 Bennett St Boston Mass*	Rheumatic Diseases	December 14 16 full time	30 00
At New England Medical Center	Arthritis	Arranged 8 weeks once weekly	50 00
New York Polyclinic Medical School and Hospital 345 W 50th St New York 19 N Y	514-A Arthritis and Allied Rheumatic Disorders	July 6-10 full time	75 00
New York University Post Graduate Medical School 477 First Ave New York 16 N Y	514 B Arthritis and Allied Rheumatic Disorders	November 9-13 full time	75 00
BACTERIOLOGY			
Public Health Service Communicable Disease Center At Atlanta Ga	Laboratory Diagnosis of Bacterial Diseases Part 1 General Bacteriology	September 21-October 2, full time	None
	Laboratory Diagnosis of Bacterial Diseases Part 2 General Bacteriology	October 5-16 full time	None
	Laboratory Diagnosis of Parasitic Diseases Part 1 Intestinal Parasites	September 21 October 16 full time	None
	Laboratory Diagnosis of Parasitic Diseases Part 2 Blood Parasites	October 10-November 6 full time	None
	Laboratory Diagnosis of Bacterial Diseases Enteric Bacteriology	October 19-30 full time	None
	Laboratory Diagnosis of Bacterial Diseases	November 2-6 full time	None
	Laboratory Diagnosis of Rabies	November 9-13 full time	None
	Laboratory Diagnosis of Parasitic Diseases	November 16-20 full time	None
	Laboratory Methods in Medical Mycology	November 23-27 full time	None
	Laboratory Diagnosis of Virus Diseases	October 19-30 full time	None
At Montgomery Ala	Basic Sciences (Bacteriology)	December 7 18 full time	200 00
University of Michigan Medical School Ann Arbor Mich	Microbiology Seminar	September 14 December 5 December 7 March 13 once weekly part time	15 00
Wayne University College of Medicine 1512 St Antoine Detroit Mich	Virology	September 14 December 5 12 weeks 3 times weekly part time	50 00
New York Medical College Flower and Fifth Ave Hospitals 1 E 106th St New York 29 N Y	Bacteriology	Arranged monthly part time	100 00
	Immunology	Arranged 6 weeks part time	50 00
	Parasitology	Arranged 6 weeks part time	70 00
BASIC SCIENCE			
University of Southern California Division of Graduate Medicine 1200 N State St Los Angeles Calif	2820 Basic Science	Arranged	Contract
University of Maryland School of Medicine 29 S Greene St Baltimore Md	Formal Basic Science Course	October June once weekly part time	50 00
New York Medical College Flower and Fifth Ave Hospitals 1 E 106th St New York 29 N Y	Basic Sciences 47	October 9 months full time	710 00 48
University of Pennsylvania Graduate School of Medicine Philadelphia 4 Pa	Basic Medical Sciences	September 28-May 22 full time	950 00
University of South Dakota School of Medical Sciences Vermillion S D	Postgraduate Basic Science 48	September 1 January 19 part time	70 00
University of Puerto Rico School of Medicine San Juan 22 P R	Seminar in Basic Sciences for Hospital Residents	Arranged 3 years once weekly part time	Not given
BIOCHEMISTRY			
Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn 16 N Y At Beth El Hospital	Clinical Biochemistry	October 10 weeks once weekly part time	30 00

Postgraduate Continuation Courses for Physicians—July 1, 1953, to Jan 15, 1954—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
CARDIOVASCULAR DISEASES			
Department of the Army Office of the Surgeon General Washington 25, D C At Fitzsimons Army Hospital Denver, Colo	Clinical Electrocardiography and Recent Advances in Cardiovascular Diseases	November 9-11 11 sessions full time	None to \$200
Delaware Academy of General Practice 1300 New Rd Wilmington 5 Del At Delaware Academy of Medicine	Cardiology for the General Practitioner	Once weekly 8 weeks, part time	\$50.00 non members
Chicago Medical Society 50 E Randolph St Chicago 111 At Sheraton Hotel	Cardiology and Hematology	November 9-13 full time	75.00
Cook County Graduate School of Medicine 701 S Wood St Chicago 12, Ill	Personal Course in Cardiovascular Disease	September 23-30 10 days part time	100.00
Maryland Academy of General Practice 4215 Park Heights Ave Baltimore Md At National Institutes of Health Bethesda	Cardiac Symposium	May 11 1 day full time	None
Harvard Medical School Courses for Graduates, 25 Shattuck St Boston Mass At Beth Israel Hospital At Boston City Hospital	Cardiology 1 Cardiology 2	January 2-May 7 full time November 4-January 2, Wednesday mornings part time July 1-31 full time	50.00 75.00 20.00
At Peter Bent Brigham Hospital At Massachusetts General Hospital	Clinical Heart Disease Cardiovascular Disease Symposium on Cardiovascular Physiology and Surgery	October 1-September 30 full time September 11-16 full time	50.00 None
University of Minnesota Center for Continuation Study Minneapolis 11 Minn Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn 16 N Y At Jew H Sanitarium and Hospital for Chronic Disease At Coney Island Hospital	Advances in Cardiology and Electrocardiography Clinical Ballistocardiography Cardiovascular Disease	October 10 weeks once weekly part time October 8 weeks once weekly part time October 10 weeks once weekly part time	30.00 20.00 20.00
Columbia University College of Physicians and Surgeons 630 W 168th St New York 32 N Y At Mount Sinai Hospital	Medicine PM 29 Clinical Cardiology Medicine PM 31 Cardiovascular Diseases Medicine PM 60 Cardiology I Medicine PM 62 Cardiology II Section A Medicine PM 63 Cardiology III Section A Medicine PM 64 Recent Advances in Diagnosis and Treatment of Heart Disease Cardiology	October 13-December 15 once weekly part time November 2-13-January 18-29 full time September 21-June 3 once weekly part time September 22-January 26 once weekly part time September 22-January 27 once weekly part time September 21-January 28 once weekly part time September-June 20 weeks part time	4.00 110.00 300.00 150.00 200.00 150.00 150.00
New York Medical College Flower and Fifth Ave Hospitals 1 E 106th St New York 29 N Y New York Polytechnic Medical School and Hospital 311 W 60th St New York 10 N Y New York University Post Graduate Medical School 477 First Ave New York 16 N Y St Francis Sanatorium for Cardiac Children Roslyn N Y North Carolina Board of Health Raleigh N C At Duke University School of Medicine Cleveland Area Heart Society, 2073 E 9th St, Cleveland 15 Ohio At Western Reserve University School of Medicine Albert Einstein Medical Center Northern Division York and Tabor Rds Philadelphia 41 Pa Hahnemann Medical College and Hospital 230 N Broad St Philadelphia Pa At Hahnemann Hospital Vermont Heart Association Health Commission University of Vermont College of Medicine Pearl St College Park Burlington Vt At University of Vermont College of Medicine Kanawha Medical Society 310 Atlas Building Charleston 1 W Va	Electrocardiographic Interpretation Diagnosis and Treatment of Diseases of the Heart 5197 A Auscultation of the Heart 5128-A Cardiac Roentgenology 5131 A Modern Concepts in Etiology, Diagnosis and Treatment of Heart Disease A Course of Seminars on Heart Diseases in Children Refresher Course in Cardiology Cardiac Resuscitation Course Postgraduate Course in Cardiology Postgraduate Cardiology Course Advanced Cardiology Course Cardiovascular Disease Cardiovascular Disease Recent Advances in Cardiac Therapy	Arranged 2 weeks part time Arranged 3 weeks part time September 14-16 full time September 17 and 18 full time January 11-15 full time October-May once monthly part time July and December 3 days, full time August-June 2 days once monthly, full time Arranged 12 weeks part time October-May once weekly, part time October-May once weekly part time October 6-10 full time October 19-23 full time September 16, full time	75.00 75.00 50.00 30.00 50.00 None Not given 20.00 50.00 100.00 200.00 Not given None None
DERMATOLOGY AND SYPHILOLOGY			
College of Medical Evangelists 812 N Boyle Ave Los Angeles 33 Calif University of California Medical Extension 10851 LeConte Ave Los Angeles 24 Calif At Veterans Administration Hospital	Dermatology	January 6-March 21 once weekly part time	40.00
Cook County Graduate School of Medicine 707 S Wood St Chicago 12, Ill Harvard Medical School, Courses for Graduates 25 Shattuck St, Boston Mass At Massachusetts General Hospital Wayne University College of Medicine 1512 St Antoine St, Detroit Mich At Receiving Hospital	Dermatology for General Practitioners Clinical Refresher Course in Dermatology Clinical Course in Dermatology Intensive Course in Dermatology Dermatology and Syphilology 1 Dermatopathology Seminar in Dermatology Dermatopathology Seminar Dermatology for General Physicians	October 7-November 11 once weekly part time Arranged 2 or more weeks full time Arranged 1 year full time Arranged 2 weeks full time October 1-September 30 full time December 7-March 13 12 weeks once weekly part time September 14-December 5 December 7-March 13 12 weeks once weekly September 14-December 5 12 weeks once weekly part time November 19-21 full time	30.00 75.00 (2 weeks) 1,000.00 100.00 50.00 50.00 15.00 15.00 25.00

Postgraduate Continuation Courses for Physicians—July 1, 1953, to Jan. 15, 1954—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
DERMATOLOGY AND SYPHILOLOGY—Continued			
Joint Committee on Post Graduate Education, 1313 Bedford Ave. Brooklyn 16 N. Y. At Kings County Hospital	Dermatology for the General Practitioner	October 8 weeks once weekly part time	\$20.00
Columbia University College of Physicians and Surgeons 630 W. 168th St. New York 32 N. Y. At Columbia Presbyterian Medical Center	Dermatology GM 1 Clinical Dermatology Dermatology GM 1 Clinical Dermatology Dermatology and Syphilology for the general Practitioner (Seminar) Dermatology and Syphilology for Specialists (Seminar) Dermatologic Histopathology (Seminar) Training for Specialization in Dermatology and Syphilology	July 1 6 months full time July 1 12 months full time Arranged 5 days Arranged 5 days Arranged 5 days 3 years full time	230.00 400.00 75.00 75.00 75.00 1 000.00
New York Polytechnic Medical School and Hospital 345 W. 50th St., New York 19 N. Y.	621-A Comprehensive Review in Dermatological Histopathology 624-A Dermatology and Syphilology (Designed for Pediatricians) 625-A Dermatology and Syphilology (Postgraduate Course) Short term and Practical Courses in Dermatology and Syphilology	Arranged 5 days, full time September 21-26 full time October 1-September 30 full time Arranged 1 week to 12 months full time	75.00 700.00 12.00 per month
American College of Physicians 4200 Pine St. Philadelphia Pa. At New York University College of Medicine New York N. Y.	Cardiovascular Diseases *3	October 12-17 full time	30.00 members 60.00 non members 90.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4 Pa.	Dermatology and Syphilology *3	September 28-May 22 full time	
DIABETES			
College of Medical Evangelists 312 N. Boyle Ave. Los Angeles 33 Calif.	General Management of Diabetes Mellitus	October 1-December 10 once weekly part time	60.00
University of Oregon Medical School 3181 S. W. Sam Jackson Park Rd. Portland 1 Ore.	Diabetes and Metabolism	November 9-11 full time	80.00
ELECTROCARDIOGRAPHY			
University of California Medical Extension 10851 Le Conte Ave. Los Angeles 24 Calif. At University of California	Electrocardiography	Twice weekly, 3 weeks, part time	20.00
University of Southern California Division of Graduate Medicine 1200 N. State St. Los Angeles Calif. At Los Angeles County Hospital	*580 Electrodiagnosis and Electromyography	3 months arranged full time	100.00
Department of the Army Office of the Surgeon General Washington 25 D. C. At Fitzsimons Army Hospital Denver Colo.	Clinical Electrocardiography and Recent Advances in Cardiovascular Diseases	November 9-14 11 sessions, full time	None *9 *20 *21
Mount Sinai Hospital 4800 Alton Road Miami Beach Fla.	Introduction to Clinical Electrocardiography (ECG I) Interpretation of the Electrocardiogram (ECG II) Intensive Course in Electrocardiography and Heart Disease Personal Course in Electrocardiography and Heart Disease Electrocardiographic Interpretation	September 28-December 10 twice weekly part time October 6-December 10 twice weekly part time July 13 and September 28 2 weeks full time October 14 10 days, part time August 3-15 full time	25.00 30.00 150.00 150.00 150.00
Cook County Graduate School of Medicine 707 S. Wood St. Chicago 12 Ill.	Electrocardiography	November 30-December 11 full time	100.00
Michael Reese Hospital Postgraduate School 29th St. and Ellis Ave. Chicago Ill.	Practical Electrocardiography Course A Practical Electrocardiography Course B	November 9-13 full time October November and December, 10 Wednesday afternoons part time	100.00 100.00
Tulane University School of Medicine 1430 Tulane Ave. New Orleans La.	Electrocardiography I Electrocardiography II	November 30-December 4 full time January 11-13 full time	40.00 80.00
Beth Israel Hospital, 330 Brookline Ave. Boston Mass.	Electrocardiography for the General Practitioner Basic Electrocardiography	October 6 weeks three days a week part time October 6 weeks twice weekly part time	30.00 20.00
Tufts College Medical School Postgraduate Division 30 Bennett St. Boston Mass. At New England Center Hospital	Electrocardiography in Clinical Practice	September 24 October 1 8 15 22 29-November 5 12 19 9 half days	50.00
Joint Committee on Post Graduate Education 1313 Bedford Ave. Brooklyn 16 N. Y. At Jewish Hospital	Medicine PM 41 Intensive Course in Elementary Electrocardiography Medicine PM 42 Intensive Course in Advanced Electrocardiography Electrocardiography	October 19-24 January 4 10 full time October 26-31 January 11 16 full time Arranged fall and spring, 2 weeks part time	60.00 60.00 100.00
At Beth El Hospital	5423-A Electrocardiography	November 16-20 full time	75.00
University of Buffalo School of Medicine 24 High St. Buffalo N. Y.	Postgraduate Study Course	Fall six weeks once weekly full time	None
Columbia University College of Physicians and Surgeons 630 W. 168th St. New York 32 N. Y. At Mount Sinai Hospital	ELECTROENCEPHALOGRAPHY		
New York Medical College Flower and Fifth Ave. Hospitals 1 E. 160th St. New York 29 N. Y.	Neurology PM 2 Clinical Electroencephalography and Electromyography Neurology PM 83 Clinical Electroencephalography 642-A Electroencephalography	October 1-January 2, full time October 1-January 14 once weekly, part time Arranged 8 weeks part time	250.00 60.00 300.00
New York University Post Graduate Medical School 477 First Ave. New York 16 N. Y.			

Postgraduate Continuation Courses for Physicians—July 1, 1953, to Jan 15, 1954—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
ENDOCRINOLOGY			
University of Minnesota, Center for Continuation Study, Minneapolis Minn ²	Postgraduate Assembly in Endocrinology	September 28-October 3, full time	Not given
University of Nebraska College of Medicine 42nd St and Dewey Ave Omaha Neb ²	Recent Advances in Endocrinology	September 22-24 full time	\$15 00
Joint Committee on Postgraduate Education 1313 Bedford Ave Brooklyn 16 N Y ¹ At Kings County Hospital	Metabolic Endocrinology	October 12 weeks once weekly, part time	20 00
At Jewish Hospital	Medical and Gynecologic Endocrinology	October 10 weeks once weekly, part time	20 00
New York Medical College, Flower and Fifth Ave Hospitals 1 E 105th St New York 29 N Y ¹	Endocrinology	Arranged fall 2 weeks part time	100 00
New York University Post Graduate Medical School, 477 First Ave New York 16 N Y ¹	5122 A Endocrinology	November 16-20 full time	50 00
Endocrine Society 1200 N Walker St, Oklahoma City, Okla ⁷	Postgraduate Assembly in Endocrinology and Metabolism	September 28-October 3 full time	125 00
ENDOSCOPY			
Cook County Graduate School of Medicine 707 S Wood St, Chicago Ill.	Course in Bronchoscopy Practical Course in Cystoscopy Clinical Bronchoscopy Bronchoesophagology	Arranged, 1 week full time 10 days full time ²⁴ September 23 8 days part time October or November, 2 weeks full time	100 00 150 00 150 00 150 00
University of Illinois College of Medicine Department of Otolaryngology 183 W Polk St Chicago 12 Ill	Otolaryngology PM 1 Bronchoscopy Medicine PM 2 Gastroscopy	October 5-23 full time	250 00
Columbia University College of Physicians and Surgeons 630 W 168th St New York 32 N Y ¹ At Columbia Presbyterian Medical Center		Arranged 2 months, 3 times a week part time	250 00
New York Medical College, Flower and Fifth Ave Hospitals 1 E 105th St New York 29 N Y ¹	Gastroscopy	Arranged 2 weeks part time	200 00
New York Polyclinic Medical School and Hospital 345 W 50th St New York 19 N Y ¹	Gastroscopy (Advanced)	Arranged 5 weeks part time	200 00
Temple University School of Medicine 3100 N Broad St Philadelphia 40 Pa	Bronchoscopy	Arranged 4 weeks part time	150 00
University of Pennsylvania Graduate School of Medicine Philadelphia 4 Pa	Postgraduate Course in Bronchoesophagology	September 21-October 2 full time	250 00
	Bronchoesophagology Gastroscopy and Laryngeal Surgery	September 14-26 full time	250 00
	Bronchoesophagology Gastroscopy and Laryngeal Surgery	First two weeks in January, full time	250 00
FRACTURES			
Cook County Graduate School of Medicine 707 S Wood St, Chicago Ill.	Intensive Course in Fractures and Traumatic Surgery Clinical Course in Fractures	October 20 2 weeks full time Arranged 1 or 2 weeks full time	150 00 50 00 1 week
State University of Iowa College of Medicine, Iowa City Iowa At University Hospital	Special Course in Fractures	September 23 10 days part time	125 00
University of Minnesota, Center for Continuation Study, Minneapolis Minn	Acute Trauma and Fractures	September 18-19 full time	5 00
New York University Post Graduate Medical School 477 First Ave New York 16 N Y ¹	Fractures for General Physicians	November 16-18 full time	25 00
	6611 A Pitfalls in the Internal Fixation of Fractures	November 9-14 full time	90 00
GASTROENTEROLOGY			
University of Southern California Division of Graduate Medicine 1200 N State St Los Angeles Calif At Los Angeles County Hospital	2514 Gastroenterology	1 year September full time	1 000 00
Cook County Graduate School of Medicine 707 S Wood St Chicago 12 Ill	Personal Course in Gastroscopy and Gastroenterology	September 14 and November 2 2 weeks full time	200 00
Wayne University College of Medicine 1512 St Antoine St, Detroit, Mich At Receiving Hospital	Course in Gastroenterology	October 26, 2 weeks full time	100 00
Joint Committee on Post-Graduate Education 1313 Bedford Ave Brooklyn 16 N Y ¹ At Jewish Hospital	Gastroenterology	September 14-December 5 December 7 March 13 12 weeks once weekly part time	15 00
At Greenpoint Hospital	Gastroscopy	October 5 weeks once weekly part time	20 00
At Cumberland Hospital	Gastroenterology	October 8 weeks twice weekly part time	30 00
Columbia University College of Physicians and Surgeons 630 W 168th St New York 32 N Y ¹ At Montefiore Hospital	Gastroenterology	October 6 weeks twice weekly part time	30 00
National Gastroenterological Association 1819 Broadway, New York 23 N Y ¹ At Hotel Biltmore Los Angeles Calif	Medicine PM 70 Gastroenterology	September 15-December 29 once weekly part time	75 00
	Medicine PM 73 Advanced Gastroenterology	January 19-May 11 once weekly, part time	75 00
	Postgraduate Gastroenterology	October 15-17 full time	25 00 members 50 00 non members
New York Medical College, Flower and Fifth Ave Hospitals 1 E 105th St New York 29 N Y ¹	Gastroenterology	Arranged fall and winter 1 month part time	100 00
New York Polyclinic Medical School and Hospital 345 W 50th St New York 19 N Y ¹	Clinical Gastroenterology	Arranged 6 weeks part time	75 00
	Proctology Gastroenterology Operative Proctology (Dissection)	October and January 6 weeks part time	200 00
	Clinical Proctology and Gastroenterology	October and January 6 weeks part time	100 00
	Clinical Proctology	Arranged 6 weeks part time	75 00
	Clinical and Cadaver Proctology	Arranged 6 weeks part time	175 00
	Clinical Gastroenterology	Arranged 6 weeks part time	75 00
	5421 A Gastroenterology	October 12-18 full time	45 00
New York University Post-Graduate Medical School 477 First Ave New York 16 N Y ¹ University of Pennsylvania Graduate School of Medicine Philadelphia 4 Pa	Gastroenterology ²⁸	September 28-May 22 full time	960 00
New York University Post-Graduate Medical School 477 First Ave New York 16 N Y ¹	GERIATRICS		
	5426-A Geriatrics	July 20-22 full time	30 00

Postgraduate Continuation Courses for Physicians—July 1, 1953, to Jan 15, 1954—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
HEMATOLOGY			
Chicago Medical Society 86 E Randolph St Chicago Ill. At Sheraton Hotel	Cardiology and Hematology	November 9-13 full time	\$75.00
Cook County Graduate School of Medicine 707 S Wood St Chicago 12 Ill	Personal Course in Morphologic Hematology	September 23, 10 days part time	150.00
Michael Reese Hospital 29th St and Ellis Ave. Chicago, Ill.	Hematologic Diagnosis and Treatment of Blood Dyscrasias	July 20-August 1 full time	150.00
Wayne University College of Medicine 1512 St. Antoine St Detroit Mich	Beginning Hematology	September 14 December 5, 12 weeks once weekly part time	50.00
	Advanced Hematology	December 7 March 13 12 weeks once weekly part time	50.00
	Review of Clinical Hematology	September 14 December 5 12 weeks once weekly part time	15.00
	Hematology Clinic	September 14 December 5 12 weeks, once weekly part time	15.00
Columbia University College of Physicians and Surgeons 630 W 168th St New York 32, N Y	Medicine PM 25 Hematology	November 3-December 22 once weekly part time	50.00
At Mount Sinai Hospital	Medicine PM 66 Clinical Hematology	September 16-January 19 once weekly part time	75.00
	Medicine PM 67 Advanced Hematology	September 22-January 5 once weekly part time	75.00
New York Academy of Medicine, Committee on Medical Education 2 East 103rd St New York 29 N Y	Disorders of the Blood and the Blood Forming Organs	October 19-30 full time	10.00
New York Medical College Flower and Fifth Ave Hospitals, 1 E 105th St New York 29 N Y	Hematology	Arranged 2 months part time	50.00
University of Pennsylvania Graduate School of Medicine Philadelphia 4, Pa	Clinical and Laboratory Hematology	October and December 6 weeks full time	200.00
At Bryn Mawr Hospital Bryn Mawr Pa	Practical Pediatric Hematology	September 16-17 full time	60.00
At Children's Hospital			
HOSPITAL ADMINISTRATION			
Albert Einstein Medical Center, Northern Division York and Tabor Rds Philadelphia 41 Pa	Postgraduate Hospital Training Program	Arranged 20 weeks, once weekly, part time	35.00
University of Pittsburgh Graduate School of Public Health Pittsburgh 13 Pa	Public Health Practice Occupational Health and Hospital Administration	September-June full time	700.00
INDUSTRIAL MEDICINE			
University of Michigan School of Public Health Ann Arbor, Mich *	Fifth Industrial Health Discussional (Seminar)	December 11-12, full time	Not given
New York University Postgraduate Medical School 477 First Ave. New York 16 N Y	480-A Introduction to Radiological Safety	Fall 2 weeks full time	50.00
University of Cincinnati Institute of Industrial Health, Eden and Bethesda Aves Cincinnati 19 Ohio *	481 A Industrial Medicine (Graduate Course)	September 28 1 year, full time	700.00
At Kettering Laboratory	910 910—Kettering Laboratory Seminar	September-May, once weekly, part time	Arranged
	Occupational Skin Problems **	October 12-16 full time	50.00
	Industrial Medicine	July 1 12 months full time	400.00
	900 Medicolegal Aspects of Industrial Medicine	January-May twice weekly part time	Arranged
University of Pittsburgh Graduate School of Public Health, Pittsburgh 13 Pa	911 912—Industrial Physiology **	September-May twice weekly, part time	Arranged
	Industrial Medicine	July 1, 3 years full time	Fellowship Stipend
INTERNAL MEDICINE			
College of Medical Evangelists, 312 N Boyle Ave Los Angeles 33 Calif	Basic Science in Internal Medicine **	September 23-June 4 full time	800.00
At Los Angeles County General Hospital	Surgical Diseases of the Peripheral Vascular System	January 6-February 23 once weekly part time	50.00
University of Southern California Division of Graduate Medicine 1200 N State St. Los Angeles Calif	Differential Diagnosis of Internal Diseases	January 6-February 23, once weekly, part time	50.00
At Los Angeles County Hospital	2830 Internal Medicine	1 year September full time	1,000.00
University of Colorado Medical Center 4200 E Ninth Ave., Denver 20 Colo.	2835 Intensive Review of Internal Medicine	September 14-25 part time	50.00
Georgetown University School of Medicine 3900 Reservoir Rd N W Washington D C	Recent Advances in Infectious Diseases	July 4 days full time	40.00
Emory University School of Medicine 36 Butler St, S E, Atlanta Ga	Internal Medicine	Arranged, 15 weeks part time	75.00
At Grady Memorial Hospital	General Internal Medicine	Arranged 2 weeks 12 months full time	**
Cook County Graduate School of Medicine 707 S Wood St Chicago 12 Ill	Intensive Course in Internal Medicine	October 12, 2 weeks full time	125.00
Iowa Academy of General Practice, 912 Equitable Bldg Des Moines Iowa	Peripheral Vascular Disease	September 24 1 day full time	Non members 5.00 members free
At Hotel Savary			40.00
University of Kansas Medical Center 39th St. and Rainbow Blvd Kansas City Kan 20	Internal Medicine	November 16-19 full time	50.00
Tulane University School of Medicine 1430 Tulane Ave New Orleans La	Internal Medicine for General Practitioners	March 22-27 full time	50.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St, Boston Mass	Diabetes and Endocrinology in Relation to General Medicine	July 6-8 full time	35.00
At New England Deaconess Hospital	Internal Medicine 1	September 1-August 31 full time	600.00
At Boston City Hospital	Internal Medicine 2	September 1-November 28, full time	850.00

Postgraduate Continuation Courses for Physicians—July 1, 1953, to Jan 15, 1954—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
INTERNAL MEDICINE—Continued			
Tufts College Medical School Postgraduate Division 30 Bennet St, Boston Mass At New England Medical Center	Review of Recent Advances in Internal Medicine	October 5-10 full time	\$45.00
University of Michigan Medical School, Ann Arbor, Mich At University Hospital	Clinical Internal Medicine	October May 1 day weekly, full time	6.00
Wayne University College of Medicine 1612 St Antoine St Detroit Mich	Medical Conference	September 11 December 5 December 7 March 13 12 weeks once weekly, part time	1.00
At Receiving Hospital	Medical X Ray Conference	September 11 December 5 December 7 March 13 12 weeks once weekly, part time	15.00
Joint Committee on Post-Graduate Education, 1318 Bedford Ave Brooklyn 16 N Y ¹ At Jewish Hospital	Internal Medicine	October 8 weeks once weekly part time	20.00
New York Medical College Flower and Fifth Ave Hospitals, 1 E 100th St New York 29 N Y	Internal Medicine	August-June 1 month full time	150.00
New York Polyclinic Medical School and Hospital 845 W 50th St New York 19 N Y	Surgical Aspects of Peripheral Vascular Diseases	August-June 2 months full time	300.00
New York University Post Graduate Medical School 477 First Ave New York 18 N Y	6420-A Internal Medicine (Graduate Course) 6418-A Peripheral Vascular Disease 6424 A Nephritis and Hypertension 6424 A Nephritis and Hypertension	Arranged part time September 28 1 year full time November 30-December 4 full time July 13-17 full time October 29-30 full time	200.00 700.00 50.00 60.00 60.00
American College of Physicians 4200 Pine St Philadelphia Pa At University of Chicago School of Medicine Chicago Ill	Internal Medicine ⁹⁵	October 19-23 full time	30.00 members 60.00 non members
At Vanderbilt University School of Medicine Nashville Tenn	Seminars in Internal Medicine ⁹⁵	October 19-23 full time	30.00 members 60.00 non members
At Duke University School of Medicine Durham N C	Physiological Basis of Internal Medicine ⁹⁵	October 12-16 full time	30.00 members 60.00 non members
At University of Wisconsin Medical School	The Newer Biological and Physiological Approaches to Clinical Problems ⁹⁵	November 16-20 full time	30.00 members 60.00 non members
University of Pennsylvania Graduate School of Medicine Philadelphia 4 Pa.	Internal Medicine ⁹⁵	September 28-May 22 full time	900.00
LEGAL MEDICINE			
School of Public Health, University of Michigan Ann Arbor Mich ¹¹	Seminar—Technical Testimony Involving Medical and Health Problems	October 21 1 day full time	10.00
University of Minnesota Center for Continuation Study, Minneapolis Minn	Medical Jurisprudence for General Physicians	November 5 and 6 full time	20.00
New York University Post-Graduate Medical School 477 First Ave New York 18 N Y	631 A Forensic Medicine (Graduate Course) 632 A Forensic Medicine	September 28-June 18 full time and part time Arranged	700.00 100.00 a month
MALIGNANT DISEASE			
Colorado State Medical Society 835 Republic Building Denver Colo ¹²	Cancer Conference	July 8-9 full time	None
Dade County Cancer Institute Cancer Cytology Center 1165 N W 14th St Miami Fla	Seminar for Physicians on Techniques and Procedures in Cancer Cytology	October 1 day full time	Not given
Columbia University College of Physicians and Surgeons 630 W 168th St New York 32 N Y At Columbia Presbyterian Medical Center	Cancer PM 1 Cancer Diagnosis and Treatment	November 16-28 full time	100.00
University of Oregon Medical School 3181 S W Sam Jackson Park Rd Portland 1 Ore ¹⁴	Diagnosis and Treatment of Malignant Neoplasms	September 14-18 full time	25.00 ⁵⁻
MEDICAL TECHNOLOGY			
University of Kansas Medical Center 39th St and Rainbow Blvd Kansas City Kan ¹⁰	Medical Technology	January 11-13 full time	10.00
MEDICINE GENERAL			
Alabama Academy of General Practice 17 Molton St Montgomery Ala At Medical College of Alabama	Alabama Academy Postgraduate Seminar	August 2 days full time	None
Medical College of Alabama 620 S 20th St Birmingham Ala At St Jude's Hospital Montgomery	Central Alabama Postgraduate Assembly	Semi monthly second and fourth Tuesday part time	3.00 per session
At Selma	Black Belt Postgraduate Assembly	Bi monthly third Thursday part time	Not given
University of Arkansas School of Medicine 1209 McAlmont St Little Rock Ark ¹⁴	Arkansas Postgraduate Program	1-3 days during academic year full time	None
Los Angeles County Medical Association 814 Pine Ave Long Beach Calif At Veterans Administration Hospital	Postgraduate Seminar	October November, 8 weeks part time	25.00
College of Medical Evangelists 812 N Boyle Ave., Los Angeles 33 Calif	General Medicine	September 29-December 15 once weekly part time	50.00
University of California, Medical Extension 10851 LeConte Ave., Los Angeles 24 Calif At University of California	Annual Evening Lecture Course	September December 12 weeks part time	50.00

Postgraduate Continuation Courses for Physicians—July 1, 1953 to Jan 15, 1954—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
MEDICINE GENERAL—Continued			
California Academy of General Practice 481 Market St San Francisco Calif At Hotel del Coronado	1953 Scientific Assembly	October 25-27 full time	\$5 00 non members free to members
University of California School of Medicine (Medical Extension) Medical Center, San Francisco Calif At Mills Memorial Hospital San Mateo At East Oakland Hospital	Evening Lectures in Medicine Medicine for General Practitioners Annual Postgraduate Assembly	Fall weekly 12 weeks part time Fall weekly 12 weeks part time September 23-24 full time	Not given 50 00 None
San Diego County General Hospital San Diego Calif San Diego County Medical Society San Diego Calif At Mercy Hospital San Diego	Recent Advances in Medicine	Once weekly for twelve weeks part time	50 00 ^{ss}
Saint John's Hospital Santa Monica Calif	Annual Postgraduate Assembly	September 8 days full time	10 00
California Medical Association 1030 N Center St Stockton Calif	Circuit Postgraduate Lectures for the North Coast Counties Circuit Postgraduate Lectures for Sacramento Valley Counties	September-October 8 weeks part time September-October 8 weeks part time	25 00 25 00
San Joaquin County Medical Society 2633 Pacific Ave Stockton Calif At Stockton State Hospital	Stockton Postgraduate Study Club Connecticut Clinical Congress	Fall once weekly 8 weeks September 16-17 full time	10 00 2 00
Yale University School of Medicine 338 Cedar St New Haven Conn ¹⁸ Delaware Academy of General Practice 1305 New Rd Wilmington 5 Del At Delaware Academy of Medicine	Second Annual Scientific Session (General Medicine)	December 12 1 day full time	None
Medical Society of the District of Columbia 1718 M St, N W Washington D C At Hotel Statler	24th Annual Scientific Assembly	October 5-7 full time	8 00 for non members ^{ss}
Emory University School of Medicine 36 Butler St S E Atlanta Ga ¹⁸ At Grady Memorial Hospital	Postgraduate Course for General Practitioners	October 5-9 full time	10 00
Cook County Graduate School of Medicine 707 S Wood St Chicago 12 Ill	Intensive Personal Course in Liver and Biliary Tract Diseases Personal Course in General Medicine	September 21 1 week full time September 28 10 days part time	100 00 100 00
Illinois Academy of General Practice 14 E Jackson Blvd Chicago Ill ¹ At Alton Belleville Chicago Danville Elmhurst Heroin Joliet Moline Peoria Rockford Springfield Decatur and Effingham	Medicine for Today—Weekly Integrated Lectures	October 13 November 20 2 days each center part time	40 00 members 75 00 non members
Boston University School of Medicine 80 E Concord St Boston 18 Mass At Massachusetts Memorial Hospitals Postgraduate Medical Institute 22 The Fenway Boston 15 Mass ¹⁸ At Throughout the State	Postgraduate Course in Medicine	November 4 April 28 part time	100 00
Michigan State and Wayne County Academies of General Practice, 15125 Grand River Detroit 27 Mich ¹⁹ At Kellogg Center East Lansing	Courses in General Medicine	October through April	Not given
University of Michigan Medical School Ann Arbor Mich	Annual Fall Postgraduate Clinic	November 11 12 full time	5 00 non members
At Alpena, Battle Creek Bay City Cadillac Flint Jackson Lansing Mt Clemens Muskegon Traverse City Escanaba Houghton Iron Mountain Ironwood Marquette and Sault Ste Marie	Clinical Exercises for Practitioners Extramural Course	October November, December 1 day weekly full time 1 day in each center in fall 1 day in spring full time	25 00 None
University of Minnesota Center for Continuation Study Minneapolis Minn	Dental Problems in Medicine for Physicians	October 21 one day full time	10 00
Mississippi Academy of General Practice ²⁰ At Heidelberg Hotel Jackson Miss	General Seminar	December 10 1 day full time	None
Kansas City Southwest Clinical Society 3036 Gillham Rd Kansas City 8 Mo At Municipal Auditorium	Annual Fall Clinical Conference	September 28-October 1 full time	20 00
Nebraska State Medical Association 1315 Sharp Bldg Lincoln Neb ²⁰ At Scotts Bluff North Platte McCook Grand Island Norfolk and Beatrice	Regional Postgraduate Course (Circuit)	September tentative part time	None
Omaha Mid West Clinical Society 1031 Medical Arts Bldg Omaha 2 Neb At Hotel Paxton	Annual Postgraduate Clinical Assembly Visiting Chief Program Fourth Graduate Week of the Academy of Medicine of New Jersey	October 20-30 part time 50 weeks continuous part time November 10-20 full time	7 00 ²¹ None None
Atlantic City Hospital 20 S Ohio Ave Atlantic City N J Academy of Medicine of New Jersey 91 Lincoln Park Newark N J	Circuit Courses	Fall 1 day full time	Not given
New Mexico Academy of General Practice 801 W Tilden St Roswell N Mex At Throughout the State Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn 16 N Y ¹ At Kings County Hospital	Recent Progress in Internal Medicine Modern Chemotherapy in Clinical Practice Hypertension and Nephritis	October 10 weeks once weekly part time October 6 weeks once weekly part time October 8 weeks once weekly part time	80 00 20 00 20 00
At St John's Episcopal Hospital At Jewish Hospital	Annual Postgraduate Course for Physicians	September 14 19 full time	50 00
University of Buffalo School of Medicine 24 High St Buffalo N Y Columbia University College of Physicians and Surgeons 630 W 168th St New York 32 N Y At Mount Sinai Hospital	Medicine PM 80 Present Day Methods in Medical Practice Medicine PM 60 Peripheral Vascular Diseases Medicine PM 72 Neoplastic Diseases	October 12 17 full time September 24-April 1 once weekly part time September 15-January 26 once weekly part time	75 00 125 00 160 00
New York Polyclinic Medical School and Hospital 345 W 50th St New York 19 N Y New York University Post-Graduate Medical School 477 First Ave New York 18 N Y	General Medicine General Practitioners Course 5480-A Review Course in General Medicine	Arranged 4 weeks full time Arranged 4 weeks full time July 13-24 full time	100 00 100 00 100 00

Postgraduate Continuation Courses for Physicians—July 1, 1953, to Jan 15, 1954—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
MEDICINE, GENERAL—Continued			
Duke University School of Medicine Durham N C	Postgraduate Seminar	October or November 3 days, full time	Not given
Medical Society of the State of North Carolina, 203 Capitol Club Building Raleigh N C At Two local communities in the state	Postgraduate Lecture Series	October and November 4 weeks once weekly, part time	\$20.00
New Hanover Medical Society Wilmington N C At Wrightsville Beach, Wrightsville Beach N C	New Hanover Medical Symposium	August 1 day, full time	Not given
North Carolina Academy of General Practice 817 Nissen Building Winston Salem N C At University of North Carolina School of Medicine	Annual Scientific Assembly	October 18-20, full time	None
Oklahoma City Clinical Society 512 Medical Arts Bldg Oklahoma City Okla At Biltmore Hotel	Clinical Conference Medicine **	October 4 days, full time Arranged once weekly, part time	20.00 None
Hillcrest Medical Center Twelfth St and Utice Ave Tulsa Okla	Advances in Medicine and Surgery	September 21-22, full time	**
University of Pennsylvania Graduate School of Medicine Philadelphia 4 Pa At Graduate Hospital and private offices	Segmental Neuralgia: Relief by Regional Anesthesia **	October-May arranged 3 weeks, full time	200.00
Medical College of South Carolina 10 Lucas St Charleston S C At Graduate Hospital and private offices	Postgraduate Seminar	November 3-5 full time	5.00
Piedmont Postgraduate Clinical Assembly The Clemson House, Clemson S C At Anderson County Hospital Anderson	Piedmont Postgraduate Clinical Assembly	September 17-18 part time	7.50
South Carolina Academy of General Practice Clemson House Clemson S C At Different localities in State	Scientific Assembly	August 2 days	Not given
University of South Dakota School of Medical Sciences Vermillion, S D	Master of Medical Science **	July 1 and September 1 1 year, full time	100.00
Andrew Jackson Academy of General Practice 217 N Main St Jackson Tenn At Nashville or adjacent towns	Continuation Course in General Practice	August October and December once weekly part time	None
At Vanderbilt University Hospital	Clinical Day	November once weekly full time	None
Nashville Academy of Medicine 617 Doctors Building Nashville Tenn ** At Hermitage Hotel	Nashville Medical Assembly	October 28-30 full time	15.00
Southwestern Medical School of the University of Texas 2211 Oak Lawn Ave Dallas Texas **	Treatment of Medical Emergencies	September 3 days full time	25.00
Postgraduate Medical Assembly of South Texas 229 Medical Arts Building Houston Texas At The Shamrock Hotel	Medical Assembly	July 20-22 full time	20.00
International Medical Assembly of Southwest Texas Inc Box 2445 San Antonio 6 Texas	Graduate Assembly	January 20-28 full time	20.00
Rocky Mountain Medical Conference 42 South Fifth East St Salt Lake City Utah **	Medical Conference	July 9-11 full time	None
University of Washington School of Medicine Seattle 6 Wash **	Drug Therapy	November 19-21 full time	25.00
Washington Academy of General Practice 426 Medical Center Building Spokane Wash At Yakima Wash	Scientific Assembly	October 30-31 full time	None
Interstate Postgraduate Medical Association 16 N Carroll St Madison 3 Wis ** At Palmer House Chicago	Annual Refresher Postgraduate Course	November 2-5 full time	5.00
University of Wisconsin Medical School 418 North Randall Ave Madison Wis	Observation Course in Medicine	Arranged 1-6 months full time	100.00 per month
Jackson Clinic Milwaukee Wis ** At Methodist Hospital	Jackson Clinic Postgraduate Meeting	October 3 full time	None
NEUROLOGICAL SURGERY			
New York University Postgraduate Medical School 477 First Ave New York 16 N Y	6-1 A The Intervertebral Disc	October 5-9 full time	60.00
	6-2 A Diagnosis and Treatment of Peripheral Nerve Injuries	January 11-15 full time	90.00
NEUROLOGY AND PSYCHIATRY			
Los Angeles Psychoanalytic Society 407 Commercial Center St Beverly Hills Calif	Professional Training in Psychoanalysis **	July-January weekly arranged	232.00
University of California Medical Extension 10851 LeConte Ave Los Angeles 21 Calif At Veterans Administration Hospital	Techniques of Hypnosis (Advanced)	Twice weekly 8 weeks part time	100.00
Yale University School of Medicine 333 Cedar St New Haven Conn **	Postgraduate Seminar **	September 30-December 9 twice weekly part time	None
Cook County Graduate School of Medicine 707 S Wood St Chicago 12 Ill.	Personal Course in Clinical Neurology	September 23 10 days part time	100.00
University of Kansas Medical Center 39th St and Rainbow Blvd Kansas City Kan ** At Menninger Foundation Topeka	Personal Course in Neuropathology	Arranged part time	20.00 per hour
	Psychosomatic Medicine Male and Female Reproductive Systems	December 10-12 full time	25.00
Tulane University School of Medicine 1450 Tulane Ave New Orleans La	Psychosomatic Problems in General Practice	November 16-21 full time	50.00
Massachusetts Department of Mental Health 15 Ashburton Place Boston Mass At Metropolitan State Hospital Waltham Mass	Postgraduate Seminar Review Course in Basic Neurology and Psychiatry	October 5-December 7 once weekly part time	None
Joint Committee on Postgraduate Education 1313 Bedford Ave Brooklyn 10 N Y At Jewish Hospital	Child Psychiatry	October 10 weeks once weekly part time	20.00
American Institute for Psychoanalysis 220 W 68th St New York N Y	The Neurotic Patient in Medical Practice	September 15 10 weeks once weekly part time	30.00
	Clinical Conferences for Certified Analysts	September 17 10 weeks once weekly part time	40.00
	Clinical Conference on Case Histories II	September 15 15 weeks, once weekly part time	45.00

Postgraduate Continuation Courses for Physicians—July 1, 1953, to Jan 15, 1954—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
NEUROLOGY AND PSYCHIATRY—Continued			
American Institute for Psychoanalysis, 220 W 88th St, New York N Y	Continuous Case Seminar	September 14, 10 weeks, once weekly, part time	\$40 00
	The Psychoanalytic Process	September 15 15 weeks once weekly, part time	60 00
	Introduction to Psychoanalytic Technique	September 14, 7 weeks, once weekly, part time	21 00
	Readings in Psychoanalysis Part I The Works of Karen Horney	November 2 25 weeks once weekly, part time	75 00
	Readings in Psychoanalysis Part II The Works of Freud	September 18, 20 weeks once weekly, part time	60 00
	Group Psychoanalysis	September 25, 10 weeks, once weekly part time	14 00
At New School for Social Research	Neuroses and Psychoses	September 22, 15 weeks once weekly, part time	21 00
Columbia University College of Physicians and Surgeons 630 W 163th St New York 32, N Y	The Growing Child A Psychoanalytic Approach	September 21, 15 weeks, once weekly, part time	21 00
At Mount Sinai Hospital	Neurology PM 81 Neuropathology	October 2-December 4 once weekly, part time	60 00
	Psychiatry PM 81 Techniques of Psychotherapy	October 13, March 2, once weekly part time	100 00
At Montefiore Hospital	Neurology PM 61 Advanced Neurology	8 months continuously, full time	150 00
At Columbia Presbyterian Medical Center	Neurology PM 62 Review of Neurology	September 16-December 9, 3 days weekly part time	160 00
	Psychiatry PM 1 Symposium on Neurology and Psychiatry	October 5-December 11 full time	250 00
	Reading in Psychoanalytic Literature	Fall 15 weeks, part time	50 00
	Integration of Psychoanalytic Orientations	October 15 weeks part time	50 00
	Personality Structures and Psychoanalysis	Fall, 15 weeks part time	50 00
New York Medical College, Flower and Fifth Ave. Hospitals 1 E 165th St, New York 29, N Y	Psychiatry and Psychoanalysis	January 12 weeks part time	40 00
	Comprehensive Course in Psychiatry	October 8 years, 5 nights weekly, part time	600 00
	Introductory Lecture in Child Psychiatry	Fall part time	40 00
	643-A Treatment Methods in Psychiatry	January 11-March 6 part time	250 00
	644-A Neuroanatomy and Neurophysiology	September 14-December 5, 3 days a week part time	250 00
New York University Post Graduate Medical School, 477 First Ave New York 16 N Y	645-A Neurology (Graduate Course)	July 1-September 14 full time	700 00
	646-A Psychiatry in the Practice of Medicine and Pediatrics	Arranged 3 months, full time	300 00
	647-A Psychiatry and Neurology	September 21-December 12, full time	800 00
	648-A Psychology and Psychodynamics	September 14-December 4 part time	Not given
	649-A Psychiatry (Graduate Course)	July 1-September 14 full time	700 00
	Review Courses**	Weekly Fridays, part time	Not given
	Clinical Psychiatry and Diagnosis	15 weeks once weekly, part time	85 00
	Treatment of Speech Disorders	5 weeks once weekly part time	15 00
	Psychopathology and Psychodynamics	15 weeks once weekly, part time	35 00
Postgraduate Center for Psychotherapy, Inc, 218 E 70th St., New York N Y	Introduction to Psychotherapy and Psychotherapeutic Techniques	15 weeks once weekly, part time	35 00
	Clinical Conferences	15 weeks once weekly part time	35 00
	Reading in Psychiatry and Allied Fields Part II	15 weeks, once weekly, part time	35 00
	Dream Interpretation	10 weeks once weekly part time	25 00
	The Handling of Special Problems in Therapy	5 weeks once weekly, part time	25 00
	Continuous Case Seminar	15 weeks once weekly part time	35 00
	Symposium for Physicians	5 sessions once a month part time	None
Albert Einstein Medical Center Southern Division 5th and Reed Sts Philadelphia 47, Pa	Psychiatry	Fall once weekly part time	None
American College of Physicians, 4200 Pine St., Philadelphia Pa	Clinical Neurology**	November 27, full time	80 00 members 60 00 non members
University of Pennsylvania Graduate School of Medicine Philadelphia 4 Pa	Clinicobiologic Neurology Psychiatry**	September 28-December 4 full time	800 00
University of Washington School of Medicine, Seattle 5 Wash**	Neurology Psychiatry**	September 28-May 23, full time	900 00
	Practical Psychiatry	July 27-31, full time	50 00
OBSTETRICS AND GYNECOLOGY			
University of California School of Medicine (Medical Ex tension) Medical Center San Francisco Calif.	Gynecological and Obstetrical Conference	September 2-4 full time	Not given
At University of California Extension Bldg	Refresher Course	Arranged 12 weeks full time	35 00
University of Colorado Medical Center 4200 E Ninth Ave Denver Colo	Obstetrics and Gynecology	November 16-20 full time	75 00
Chicago Medical Society 86 E Randolph St Chicago, Ill.	Twenty hour Personal Course in Vaginal Approach to Pelvic Surgery	September 14 and November 2, 1 week full time	100 00
At Sheraton Hotel	Intensive Course in Gynecology	September 21 and October 19, 2 weeks full time	150 00
	Intensive Course in Obstetrics	October 5 and November 2, 2 weeks full time	150 00
Cook County Graduate School of Medicine 707 S Wood St Chicago Ill	Personal Course in Gynecologic Surgery	September 9 and November 4, 5 days part time	100 00
	Personal Course in Office Gynecology	September 9 and November 4, 4 days part time	100 00
	Personal Course in General and Office Obstetrics	July 1 and October 21 4 days part time	100 00
	Personal Course in Surgical Obstetrics	September 2 and November 18, 4 days part time	100 00

Postgraduate Continuation Courses for Physicians—July 1, 1953, to Jan 15, 1954—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
OBSTETRICS AND GYNECOLOGY—Continued			
Iowa Academy of General Practice, 912 Equitable Bldg, Des Moines, Iowa At Hotel Savery	Medicine-Obstetrics	September 25 1 day full time	Non members \$5.00 members free
State University of Iowa College of Medicine, Iowa City, Iowa At University Hospital	Obstetrics and Gynecology	Arranged, 1½ days, full time	10.00 ⁷¹
University of Kansas Medical Center 39th St and Rainbow Blvd Kansas City Kan ²⁰	Gynecology	November 9-11 full time	80.00
Tulane University School of Medicine 1430 Tulane Ave New Orleans La	Surgery Gynecology and Traumatology	January 11-16, full time	50.00
Johns Hopkins University School of Medicine 710 N Washington St Baltimore Md At Johns Hopkins Hospital	Gynecological Pathology	October 1 December 1 and February 1 8 weeks full time	150.00
Harvard Medical School Courses for Graduates 25 Shattuck St Boston Mass	Pathology of Obstetrics and Gynecology 2	January 7 May 13 Thursdays only, part time	165.00
At Free Hospital for Women	Gynecology 3	July August and September, 1 month full time	150.00
At Massachusetts General Hospital	Clinical Obstetrics	September 14-20 full time	165.00
At Boston Lying In Hospital		October November 1 month full time	155.00
University of Minnesota, Center for Continuation Study, Minneapolis Minn	Obstetrics for General Physicians	December 2-4 full time	20.00
University of Buffalo School of Medicine 24 High St Buffalo, N Y	Obstetrics and Office Gynecology	November 18-19 full time	25.00
Joint Committee on Post Graduate Education 1813 Bedford Ave Brooklyn 16 N Y ¹ At St John's Episcopal Hospital	Office Gynecology	October 8 weeks once weekly, part time	20.00
Columbia University College of Physicians and Surgeons 630 W 168th St New York 32 N Y At Margaret Hague Maternity Hospital, Jersey City N J	Obstetrics PM 80 Internship Training Obstetrics PM 81 Observation Course General Fertility and Sterility Advanced Course in Fallopian Tube Physiology Pathology Diagnosis and Treatment Advanced Course in Culdoscopy in Sterility	3 months continuously full time 1 month continuously full time Arranged 2 weeks part time Arranged 2 weeks part time Arranged 2 weeks part time	350.00 100.00 200.00 150.00
New York Medical College, Flower and Fifth Ave Hospitals 1 E 105th St New York 29 N Y	Advanced Course in Endometrial Biopsy and Ovulation Advanced Course in Operative (Reparative and Restorative) Gynecology in Sterility Advanced Course in Semen and Semen Analysis	Arranged part time Arranged 2 weeks part time Arranged, 1 week part time	150.00 150.00 75.00
New York Polyclinic Medical School and Hospital 345 W 50th St New York 19 N Y	Clinical Gynecology Clinical and Operative (Cadaver) Gynecology Obstetrics and Gynecology ⁷² Manikin Obstetrics Clinical Course in Office and General Obstetrics Culdoscopy	Arranged 6 weeks part time Arranged 6 weeks part time October 2 months full time Arranged 4 weeks part time Arranged 4 weeks, part time Arranged twice weekly part time	75.00 175.00 250.00 100.00 100.00 100.00
New York University Post Graduate Medical School 477 First Ave New York 16 N Y	660-A Diagnosis and Therapy of Malignant Neoplasms of the Female Genital Tract 661 A Seminar in Gynecology 662 A Technique of Gynecological Examination 663 A Infertility 664 A Electrical Modalities in Gynecology (for Specialists) 665-A Culdoscopy	September 14-June 17 twice weekly part time October 5-31, full time October 26-November 16 3 days a week part time December 7-9 full time October 12 November 18 twice weekly part time November 30-December 4 3 days a week part time	300.00 150.00 50.00 40.00 75.00 50.00
Southern Pediatric Seminar Saluda N C	667 A Gynecological Endocrinology	October 6-December 3 3 days a week part time	125.00
University of Pennsylvania Graduate School of Medicine Philadelphia 4 Pa	668-A Gynecological Cytology (for Specialists) 669-A Surgical Anatomy as Applied to Gynecology 670-A X-ray Diagnosis in Obstetrics and Gynecology	October 6-December 3 twice weekly part time September 8-October 9 3 days a week part time Arranged 3 days part time	100.00 175.00 45.00
Tennessee State Medical Association Postgraduate Committee 4 S Dunlap St Memphis Tenn At 46 Teaching centers or county seat towns	734 A Gynecology (for Specialists) Obstetrical Course Gynecology Obstetrics ⁴⁸	September 8-December 24 part time August 8-8 full time September 28-May 22	250.00 20.00 960.00
Southwestern Medical School of the University of Texas 2211 Oak Lawn Ave Dallas Texas ²⁴	Obstetrics	September 1 1953-September 1 1954 10 weeks in each circuit once weekly part time	20.00
University of Puerto Rico School of Medicine San Juan P R ²¹	Psychosomatic Medicine	December 3 days full time	25.00
	Cytology and Cytologic Technique in Gynecology	Arranged 16 hours part time	None
OPHTHALMOLOGY AND OTOLARYNGOLOGY			
College of Medical Evangelists 312 N Boyle Ave Los Angeles 33 Calif	Basic Science in Otolaryngology ⁶⁶	September 28-June 4 full time	800.00
University of California School of Medicine (Medical Extension) Medical Center San Francisco Calif ²² At University of California Hospital	Ophthalmology (for Specialists) Ophthalmology (for Specialists)	September 7-12 full time September 15-20 full time	Not given 70.00

Postgraduate Continuation Courses for Physicians—July 1, 1953, to Jan 15, 1954—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
OPHTHALMOLOGY AND OTOLARYNGOLOGY—Continued			
At University of California Medical Center San Francisco	Resident Course in Ophthalmology	Between September and January, part time	\$200.00
University of Colorado Medical Center 4200 E Ninth Ave., Denver Colo. ²²	Postgraduate Seminar	August 3-6 full time	40.00
Cook County Graduate School of Medicine 707 S Wood St., Chicago Ill	Two-Week Clinical Course in Ophthalmology	1st of every week, full time	50.00
	Two-Week Clinical Course in Otolaryngology	1st of every week full time	50.00
Illinois Masonic Hospital 836 Wellington Ave Chicago Ill	Surgery of Septum and External Nasal Pyramid	October 8 days full time	200.00
Northwestern University Medical School 303 East Chicago Ave., Chicago Ill	Basic Science Course in Extraocular Muscles ²³	September 14-20 part time	100.00
	Basic Science Course in Extraocular Muscles ²⁴	Arranged 8 days full time	150.00
	Postgraduate Basic Course in Ophthalmology	January 4-June 18, full time	500.00
	Endaural Otologic Surgery and Audiology	September 14-October 10 full time ²⁵	500.00
University of Illinois College of Medicine 1853 W Polk St., Chicago 12 Ill	Annual Otolaryngological Assembly	September 21-October 3 full time	175.00 ²⁶
At Illinois Eye and Ear Infirmary	Basic Otolaryngology ²⁷	October 1-June 30 full time	750.00
	Postgraduate Course in Ophthalmology	July 1-December 31, full time	500.00
State University of Iowa College of Medicine, Iowa City, Iowa	Ophthalmology Conference	Monthly first Wednesday, full time ²⁸	None
Tulane University School of Medicine 1480 Tulane Ave New Orleans La	Basic Science Course in Ophthalmology	July 6-June 30 full time	500.00
	Ophthalmic Pathology	November 30-December 5 full time	100.00
University of Maryland School of Medicine 29 S Greene St., Baltimore Md	Anatomy of the Head and Neck as Applied to Eye Ear, Nose and Throat Surgery ²⁹	Arranged October, twice weekly part time	150.00
Harvard Medical School Courses for Graduates 25 Shattuck St Boston 15 Mass	Basic Science Course in Ophthalmology ³⁰	September 28-February 27, full time	700.00
At Harvard Medical School and Massachusetts Eye and Ear Infirmary	Basic Sciences in Otolaryngology	November 2-March 27, full time	930.00
At Massachusetts Eye and Ear Infirmary	Basic Sciences in Ophthalmology	September-December 3 weeks, full time	400.00
Tufts College Medical School Postgraduate Division, 30 Bennet St Boston Mass	Neuro-Ophthalmology	November 16-20, full time	50.00
At Boston City Hospital	Basic Ophthalmology	September 14-June 9 months full time	900.00
Wayne University College of Medicine 1512 St Antoine St Detroit Mich	Home Study Course in Ophthalmology	September 1-June 30, part time	20.00
American Academy of Ophthalmology and Otolaryngology, 100 First Ave Bldg Rochester Minn	Home Study Course in Otolaryngology	September 1-June 30 part time	20.00
At Palmer House Chicago	Instruction Courses Ophthalmology Otolaryngology and Maxillofacial Surgery	October 11-16 part time	2.00 per hour
Washington University School of Medicine, 640 S Kingshighway St Louis 10 Mo	Basic Course in Ophthalmology ³¹	September-May full time	800.00
American Academy of Plastic Surgery for Head and Neck 307 Second Ave New York N Y	Otolaryngologic Plastic Surgery	September 16-October 8 full time	250.00
At Manhattan General Hospital	Otorhinology PM 39 Rhinoplasty and Otoplasty	September 16-December 16 once weekly part time	250.00
Columbia University College of Physicians and Surgeons 630 W 168th St New York 32 N Y	Ophthalmology PM 60 Elementary Ophthalmoscopy	January 4-March 1 once weekly, part time	30.00
At Mount Sinai Hospital	Ophthalmology PM 62 Glaucoma	October 19-December 7 once weekly part time	30.00
	Physiological Optics in Clinical Practice	Arranged 6 weeks part time	100.00
	Plastic Eye Surgery	Arranged 4 weeks part time	150.00
	Anomalies of Extraocular Muscles	Arranged 4 weeks part time	75.00
	Slit Lamp Microscopy	Arranged 4 weeks part time	100.00
	Ophthalmoscopy	Arranged 4 weeks part time	75.00
	Glaucoma	Arranged 8 weeks part time	75.00
	Refraction	Arranged 8 weeks part time	100.00
	Perimetry	Arranged 4 weeks part time	75.00
	Neuro-Ophthalmology	Arranged 4 weeks part time	75.00
	Röntgenology	Arranged 1 week part time	50.00
	Resuscitation	Arranged 1 week part time	for eye 50.00
	The Conservative Management of Acute Sinusitis and Chronic Rhinitis	Arranged 6 hours part time	for ear 50.00
	Rehabilitation of the Hard of Hearing	Arranged 4 hours part time	75.00
	Clinical Histopathology of the Eye	Arranged 16 hours part time	75.00
	Broncho-Esophagology and Laryngeal Surgery	Arranged 12 days part time	250.00
	External Disease of the Eye	Arranged 5 days part time	75.00
	Clinical Physiotherapy of the Ear	Arranged 10 hours part time	150.00
	Didactic and Operative Work in Rhinoplasty and Otoplasty	Arranged 4 weeks part time	250.00
	Allergy (Eye and Ear)	Arranged 30 days part time	150.00
	Operative Eye Surgery	Arranged 4 weeks part time	for eye 150.00
	Otolaryngology and Ophthalmology	October 1 9 months full time	for ear 150.00
	Otolaryngology and Ophthalmology	October and January 3 months full time	for ear 600.00
At New York University College of Medicine			
New York Polyclinic Medical School and Hospital 340 W 50th St., New York 19 N Y			

Postgraduate Continuation Courses for Physicians—July 1, 1953, to Jan 15, 1954—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
OPHTHALMOLOGY AND OTOLARYNGOLOGY—Continued			
New York Polyclinic Medical School and Hospital 60th St, New York 19 N Y	Surgical Anatomy of Nose and Accessory Sinuses	Arranged 4 weeks part time	\$150 00
	Clinical Ophthalmology	Arranged 6 weeks full time	75 00
	Clinical Ophthalmology	Arranged 3 months full time	100 00
	Clinical Otolaryngology	Arranged 6 weeks part time	100 00
	Clinical Otolaryngology	Arranged 3 months full time	150 00
	Clinical Ophthalmology and Otolaryngology	Arranged 6 weeks part time	150 00
	Clinical Ophthalmology and Otolaryngology	Arranged, 3 months part time	250 00
	Operative Nose and Throat (Dissection)	Arranged 4 weeks part time	150 00
	Operative Otolaryngology (Cadaver)	Arranged 4 weeks part time	100 00
	Head and Neck Dissection	Arranged 4 weeks part time	150 00
	Seminar in Ophthalmology and Otolaryngology	Arranged 5 days full time	50 00
	Operative Ophthalmology (Dissection)	Arranged 4 weeks part time	100 00
	Motor Anomalies	Arranged 4 weeks part time	50 00
	Ophthalmology ⁷⁹	Arranged 3 months part time	200 00
	Refraction	Arranged 4 weeks part time	100 00
	Advanced Otolaryngology	Arranged 2 weeks part time	250 00
	674 A Surgery of the Eye (for Specialists)	October 20-31 full time	100 00
	675 A Differential Diagnosis with the Slit Lamp (for Specialists)	November 2-6 part time	75 00
	676 A Ophthalmology	September 28-June 18, full time	700 00
	677 A External Diseases of the Eye (for Specialists)	November 2-6 part time	Not given
New York University Post Graduate Medical School First Ave New York 10, N Y	678 A Ocular Expressions of Systemic Diseases	September 14-18 part time	50 00
	691 A Intensive Course in Basic Sciences (Otorhinolaryngology)	September 14-20 part time	100 00
	692 A Histopathology of the Ear Nose and Throat	September 14-20 part time	100 00
	693 A Basic Sciences of Otorhinolaryngology	September 23-June 18 full time	700 00
	694 A Endaural Surgery	November 9-20 full time	200 00
	695 A Anatomy of the Head Neck and Throat (for Otolaryngologists)	September 23-November 6 part time	125 00
	697 A Neuroanatomy Neurophysiology and Neuro-Otolaryngology	November 2-6 full time	75 00
	698 A Pathology of the Head and Neck	November 9-December 18 part time	125 00
	699 A Rhinology Sinus and Nasal Surgery	December 7-11 full time	100 00
	6711 A Ophthalmoscopy	September 10-October 8 twice weekly part time	50 00
	6713 A Ocular Therapeutics	October 27-November 19 twice weekly part time	50 00
	6714 A Histopathology	September 14-19 part time	100 00
	6910 A Laryngology and Surgery of the Larynx and Neck	January 4-15 full time	200 00
	6911 A Advanced Surgery of the Neck	Arranged 10 days full time	250 00
	Ophthalmology ⁴⁸	September 28-May 22 full time	900 00
	Otolaryngology ⁴⁸	September 28-May 22 full time	900 00
University of Pennsylvania Graduate School of Medicine Philadelphia 4 Pa	Clinical Session—Postgraduate	November 30-December 3 full time	35 00 ⁸⁰
ORTHOPEDIC SURGERY			
College of Medical Evangelists 312 N Boyle Ave Los Angeles Calif	Diseases and Injuries of Bones and Joints	July 6-31 full time	100 00
Tulane University School of Medicine 1430 Tulane Ave New Orleans La	Basic Science as Applied to Orthopedics ⁸¹	September 1-5 months full time	300 00
Harvard Medical School Courses for Graduates, 20 Shattuck St, Boston Mass	Treatment of Fractures and Other Traumatic Conditions	September 28-October 3 full time	155 00
New York Medical College Flower and Fifth Ave Hospitals 1 E 106th St New York 29 N Y	Fractures and Allied Trauma	Fall 4 weeks full time	200 00
	Orthopedics in General Practice	November 1 week full time	60 00
New York Polyclinic Medical School and Hospital 315 W 60th St New York 19 N Y	Orthopedics of the Foot	Arranged 8 weeks part time	100 00
	Orthopedic Surgery for General Surgeons	Arranged 3 months part time	75 00
New York University Post-Graduate Medical School 477 First Ave New York 10 N Y	Operative Orthopedics (Dissection)	Arranged 5 days part time	100 00
	Advanced Orthopedics of the Foot	Arranged 8 days part time	100 00
University of Pennsylvania Graduate School of Medicine Philadelphia 4 Pa	681 A Basic Science as Related to Orthopedic Surgery	January 4-June 18 full time	450 00
	683 A Anatomy for Orthopedic Surgeons	January 4-8 full time	90 00
	Orthopedics ⁴⁸	September 28-May 22 full time	900 00
PATHOLOGY			
College of Medical Evangelists 312 N Boyle Ave Los Angeles Calif	General and Surgical Pathology	September 23-June 3 twice weekly part time	175 00
Armed Forces Institute of Pathology 7th and Independence Avenue S W Washington 25 D C	Forensic Pathology ^{40 50 51 52}	November 2-6 10 sessions part time	None
Cook County Graduate School of Medicine 707 S Wood St Chicago Ill	Course in Gross and Surgical Pathology	Arranged 1 year full time	900 00
	Course in Gross and Microscopic Pathology	Arranged 1 year full time	500 00
	Personal Course in Surgical Pathology	Arranged 2-4 or more weeks full time	150 00
	Personal Course in Surgical Pathology on Selective Subjects	Arranged 12 weeks full time	2 weeks 15 00
University of Maryland School of Medicine 29 S Greene St Baltimore Md	Clinical Course in Gross and Surgical Pathology	Arranged 6 months full time	per hour 500 00
	Neuropathology ⁸²	Arranged 6 months full time	210 00

Postgraduate Continuation Courses for Physicians—July 1, 1953, to Jan 15, 1954—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
PATHOLOGY—Continued			
University of Michigan Medical School Ann Arbor Mich	Basic Sciences (Pathology)	September 21 December 4 11 weeks, full time	\$250 00
Wayne University College of Medicine, 1512 St Antoine St Detroit Mich	Neuropathology	December 7 March 13 12 weeks, once weekly part time	60 00
Columbia University College of Physicians and Surgeons 630 W 108th St New York 32 N Y	{ Pathology PM 1 Surgical Pathology Pathology PM 1 Surgical Pathology Pathology PM 30 General and Special Pathology	July 1 6 months full time	230 00
At Columbia Presbyterian Medical Center		July 1 12 months full time	460 00
At Mount Sinai Hospital	{ Pathology Clinical Pathology	October 3-January 9 once weekly, part time	60 00
New York Medical College Flower and Fifth Ave Hospitals 1 E 105th St, New York 29 N Y		Arranged 16 weeks part time	200 00
New York Polyclinic Medical School and Hospital 845 W 50th St New York 19, N Y	{ Pathology	Arranged 26 hours part time	100 00
	{ Pathology	Arranged 8 months part time	300 00
	{ Pathology	Arranged 12 months part time	1 000 00
	{ Pathology for Surgeons	Arranged 1 month part time	100 00
	{ Surgical Pathology	Arranged 8 months part time	300 00
	{ Urological Pathology	Arranged 8 months part time	60 00
	{ Gynecological Pathology	Arranged 2 weeks part time	200 00
	{ Blood Transfusions	Arranged 2 weeks part time	100 00
New York University Post Graduate Medical School 477 First Ave, New York 16 N Y	{ 442 A Surgical Pathology (for Specialists)	September 22-January 7, twice weekly part time	200 00
	{ 443-A Principles of Pathology	September 23-December 16 twice weekly part time	100 00
	{ 444-A Special Pathology for Surgeons	January 7-June 17 once weekly, part time	125 00
Hillcrest Medical Center Twelfth St and Utice Ave, Tulsa Okla	Clinical Pathological Conference	Arranged once every two weeks part time	None
PEDIATRICS			
Cook County Graduate School of Medicine 707 S Wood St Chicago 12, Ill	{ Department Course in Pediatrics*	July 1 1 year full time	750 00
	{ Clinical Refresher Course in Pediatrics	Arranged 2 weeks full time	00 00
	{ Personal Course in Pediatrics	Arranged 1 month full time	100 00
	{ The Diagnosis and Treatment of Congenital and Rheumatic Heart Disease in Infants and Children	September 23 10 days part time	100 00
Louisiana State Department of Health 418 Royal St. New Orleans La	Circuit Course	4 successive evenings twice annually	None
At Various sections throughout the State	Pediatric Refresher Course	Arranged, October, 3 days full time	Not given
At Louisiana State University School of Medicine			
Harvard Medical School Courses for Graduates 25 Shattuck St, Boston Mass	Pediatrics 1	October 1 May 31 full time	805 00
At Massachusetts General Hospital	Pediatrics 2	September 1 December 18 and January 4 April 23 full time	505 00
At Childrens Hospital			
Tufts College Medical School Postgraduate Division 30 Bennet St Boston Mass	Pediatrics I	November 2-6 full time	45 00
At Boston Floating Hospital and Boston Dispensary	Pediatrics II	November 2-13 part time	30 00
At Boston Floating Hospital	Pediatrics for General Physicians	January 7-9 full time	25 00
University of Minnesota Center for Continuation Study Minneapolis Minn	{ Clinical Pediatrics	Arranged 1 month full time	150 00
New York Medical College, Flower and Fifth Ave Hospitals 1 E 105th St New York 29 N Y	{ Clinical Pediatrics	Arranged 3 months full time	250 00
	{ Clinical Pediatrics	Arranged 6 months full time	450 00
	{ Clinical Pediatrics	Arranged 9 months full time	650 00
	{ Clinical Pediatrics	Arranged 1 year full time	850 00
	{ Pediatric Allergy Course I	October 20 weeks once weekly part time	300 00
New York Polyclinic Medical School and Hospital 845 W 50th St New York 19 N Y	Pediatrics	Arranged 4 weeks part time	75 00
New York University Post Graduate Medical School 477 First Ave New York 16 N Y	{ 6110-A Pediatrics	September 14 9 months full time	700 00
	{ 611 A Clinical Pediatrics	November 2-January 13 3 days weekly part time	125 00
	{ 612 A Clinical Pediatrics	October 5-30 full time	150 00
	{ 614 A Review of Clinical Pediatrics	September 21-26 full time	50 00
Southern Pediatric Seminar Saluda, N C	{ 617 A Communicable Diseases	January 11-16 full time	50 00
	{ 618-A Pediatric Cardiology	September 14-18 full time	50 00
Frank E Bunts Educational Institute 2020 E 63rd St Cleveland 6 Ohio	Pediatric Course	July 20-August 1 full time	40 00
Hillcrest Medical Center Twelfth St and Utice Ave Tulsa Okla	Current Therapy in Pediatrics	October 7-8 full time	15 00
St Christophers Hospital for Children 2600 N Lawrence St Philadelphia Pa 34	Pediatrics (Postgraduate and Continuation)	Arranged once weekly part time	None
University of Pennsylvania Graduate School of Medicine Philadelphia 4 Pa	Postgraduate Course in Pediatrics for the General Practitioner	November-March 20 weeks once weekly part time	50 00
At Childrens Hospital	Pediatrics**	September 23-May 22 full time	960 00
Asociacion Medica de Puerto Rico San Juan P R 35	Practical Pediatric Hematology	September 15-17 full time	60 00
At In districts of Puerto Rico	Refresher Course in Pediatrics	July-December once weekly part time	None
PHARMACOLOGY			
State University of Iowa College of Medicine Iowa City Iowa	Advanced Pharmacology	Arranged, 1 hour weekly part time	None
PHYSICAL MEDICINE AND REHABILITATION			
College of Medical Evangelists 312 N Boyle Ave Los Angeles 33 Calif	Physical Medicine	September 30-November 18 once weekly part time	30 00
University of Southern California Division of Graduate Medicine 1200 N State St Los Angeles Calif	2879 Advanced Clinical Practice in Physical Medicine	1 year arranged full time	1 000 00
At Los Angeles County Hospital			

Postgraduate Continuation Courses for Physicians—July 1, 1953, to Jan 15, 1954—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
PHYSICAL MEDICINE AND REHABILITATION—Continued			
American Congress of Physical Medicine and Rehabilitation, 30 N Michigan Ave Chicago 2 Ill. At Palmer House	Instruction Seminar	Every day August 31 September 4, part time	\$4
University of Minnesota Center for Continuation Study Minneapolis Minn.	Rehabilitation for General Physic- ians	October 22-21, full time	\$20.00
Columbia University College of Physicians and Surgeons, 630 W 168th St New York 32 N Y	Physical Medicine and Rehabilita- tion PM I	July 1, 6 months, full time	230.00
At Columbia Presbyterian Medical Center	Physical Medicine and Rehabilita- tion PM	July 1, 12 months, full time	460.00
New York Polyclinic Medical School and Hospital 315 W 50th St, New York 19 N Y	Physical Medicine and Rehabilita- tion	Arranged 4 weeks, full time	100.00
	733-A Physical Medicine and Rehabili- tation (Graduate Course)	September 23-June 18 full time	700.00
	733-B Physical Medicine and Rehabili- tation (Graduate Course)	January 11-October 8 full time	700.00
	730 Physical Medicine and Rehabili- tation	Arranged 12 weeks	200.00
	730 Physical Medicine and Rehabili- tation	Arranged 21 weeks	400.00
New York University Post Graduate Medical School 477 First Ave, New York 10, N Y 36	7310-A Physical Medicine and Re- habilitation	September 21-October 10 full time	100.00
	7310-A Physical Medicine and Re- habilitation	January 11-February 5 full time	100.00
	7312 A Seminar on the Rehabilita- tion of Children	October 19-23, full time	40.00
	7312 A Seminar on the Rehabilita- tion of Children	January 18-22 full time	40.00
University of Pennsylvania Graduate School of Medicine Philadelphia 4 Pa	Physical Medicine 48	September 23-May 22, full time	960.00
PHYSIOLOGICAL CHEMISTRY			
Cook County Graduate School of Medicine 707 S Wood St, Chicago 12, Ill.	Biochemical Background of Clinical Medicine	September 23 10 days part time	12.00
Wayne University College of Medicine, 1512 St Antoine St, Detroit Mich	Seminar	September 14-December 5 December 7 March 18 12 weeks once weekly part time	15.00
	Special Topics	September 14-December 5 12 weeks once weekly, part time	15.00
PHYSIOLOGY			
College of Medical Evangelists 312 N Boyle Ave Los Angeles 33 Calif.	Surgical Physiology	October 1-June 3 once weekly, part time	75.00
Mercy Hospital San Diego Calif.	Formal Basic Science and Continua- tion Course in Applied Physiology	October-August weekly part time	None
San Diego County General and Mercy Hospitals San Diego Calif.	Formal Basic Science Course	October-August alternate weeks part time	\$5
Army Medical Service Graduate School Walter Reed Army Medical Center Washington 12 D C	Symposium on Circulation and Hemostasis 49 50 51 52	October 5-9 full time	None
State University of Iowa College of Medicine Iowa City Iowa	Advanced Physiology	September-February once weekly, part time	None
	Physiology of Aging	September-February once weekly, part time	None
Tulane University School of Medicine 1430 Tulane Ave New Orleans La	Applied Physiology	Annually Monday evenings part time	50.00 per semester
Columbia University College of Physicians and Surgeons, 630 W 168th St, New York 32 N Y	Physiology PM 32 Normal and Pathological Physiology	October 21-April 7 once weekly, part time	100.00
At Mount Sinai Hospital	Physiology of the Cardio Vascular System and Blood	Arranged 1 month part time	75.00
	Physiology and Respiration	Arranged 1 month part time	75.00
	Physiology of the Nervous System	Arranged 2 weeks part time	60.00
	Physiology of the Special Senses	Arranged 1 month part time	75.00
	Physiology of the Endocrine System	Arranged 1 month part time	75.00
	Physiology and Chemistry of the Gastrointestinal Tract Digestion	Arranged 1 month part time	150.00
	Applied Physiology	Arranged 30 days part time	300.00
	Histology	Arranged 5 weeks full time	300.00
	Newer Concepts in the Physiology of Cancer	Arranged, 6 weeks part time	150.00
	Nutrition	Arranged 1 month part time	150.00
New York University Post-Graduate Medical School 477 First Ave New York 16 N Y	5420-A Normal and Pathological Physiology Functional and Chem- ical Aspects	September 21-October 2 full time	100.00
POLIOMYELITIS			
Orthopaedic Hospital 2400 S Flower St Los Angeles Calif 37	Poliomyelitis	October 26-30 full time	15.00
Georgia Warm Springs Foundation Warm Springs Ga 37	Care of Poliomyelitis	October and January 1 week, full time	None
The Children's Medical Center 300 Longwood Ave Boston Mass 37	Refresher Course	August 3-7 full time	50.00
University of Pittsburgh School of Medicine 3941 O'Hara St Pittsburgh 13 Pa	Management of Acute Poliomyelitis with Emphasis on Prescription of the Respirator and Rocking Bed	Arranged 5 days minimum full time	10.00 36
At D T Watson School of Physiatry Leetsdale			
PROCTOLOGY			
Cook County Graduate School of Medicine 707 S Wood St Chicago 12 Ill	Lectures and Cadaver Course in Proctology	October 14 5 days part time	100.00

Postgraduate Continuation Courses for Physicians—July 1 1953 to Jan 15, 1954—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
PROCTOLOGY—Continued			
Tufts College Medical School Postgraduate Division 30 Bennet St Boston Mass At Boston Dispensary and Mount Auburn Hospital Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn 16 N Y ¹ At Jewish Hospital	Proctology I	October 19-23 full time	\$45 00
	Proctology	October 6 weeks twice weekly part time	40 00
PUBLIC HEALTH			
University of California School of Public Health Berkeley Calif	Graduate Study ²⁷	September-June full time	194 00 ²⁸
Johns Hopkins University School of Hygiene and Public Health 615 N Wolfe St Baltimore Md	Master of Public Health	September-June full time	800 00
Harvard University School of Public Health 65 Shattuck St Boston Mass	Doctor of Public Health ²⁹	September-May full time	800 00
Albany Medical College 47 New Scotland Ave Albany 3 N Y	Public Health	September 28-June 17 full time	600 00
At Albany Syracuse Rochester Buffalo Poughkeepsie			
Columbia University College of Physicians and Surgeons 630 W 168th St New York 32 N Y	Extension Course in Public Health	Arranged 6 days part time	25 00
At School of Public Health			
Columbia University School of Public Health 600 W 168th St New York 32 N Y	Occupational Medicine 201 Introduction to Occupational Medicine	November 23-January 30 once weekly part time	25 00
University of Pittsburgh Graduate School of Public Health Pittsburgh 13 Pa	Hospital Administration	September 24 21 months full time	1 045 00
	Public Health	September 24 9 months full time	830 00
	Administrative Medicine	September 24 21 months full time	1 045 00
	Public Health Practice Occupational Health and Hospital Administration	September-June full time	700 00
PULMONARY DISEASES			
Department of the Army Office of the Surgeon General Washington 25 D C At Fitzsimons Army Hospital Denver Colo	Symposium on Pulmonary Diseases ^{49 50 51 52}	September 21-25 full time	None
Public Health Service Communicable Disease Center At Atlanta Ga	Laboratory Diagnosis of Tuberculosis	November 9-13 full time	None
	Laboratory Diagnosis of Tuberculosis	November 16-27 full time	None
	Laboratory Methods in the Study of Pulmonary Mycoses	November 30-December 11 full time	None
American College of Chest Physicians 112 E Chestnut St Chicago 111 At Hotel New Yorker New York City	Postgraduate Course in Diseases of the Chest	November 2-6 full time	70 00
At Knickerbocker Hotel Chicago	Postgraduate Course in Diseases of the Chest	September 28-October 2 full time	75 00
University of Minnesota Center for Continuation Study Minneapolis Minn ³³	Diseases of Chest for General Physicians	October 15-17 full time	20 00
Columbia University College of Physicians and Surgeons 630 W 168th St New York 32 N Y	Medicine PM 71 Diseases of the Chest	January 8-May 29 once weekly part time	100 00
At Montefiore Hospital	Medicine PM 80 Diseases of the Chest	October 1-31 full time	75 00
At Bellevue Hospital	Pulmonary Tuberculosis	Arranged 3 weeks full time	175 00
New York Medical College, Flower and Fifth Ave Hospitals 1 E 104th St New York 29 N Y	Diseases of the Chest	October 2 months part time	100 00
Saranac Lake Medical Society P O Box 707 Saranac Lake N Y ³⁴	Tuberculosis Symposium for General Practitioners	July 13-17 full time	40 00 members 60 00 non members Not given
Ohio State University College of Medicine Neil and Eleventh Aves Columbus, Ohio ⁴⁰	Course in Pulmonary Diseases	September 20-26 full time	20 00
Southwestern Medical School of the University of Texas 2211 Oak Lawn Dallas Texas ⁴⁵	Tuberculosis	October 3 days full time	20 00
RADIOLOGY			
College of Medical Evangelists 312 N Boyle Ave Los Angeles 33 Calif	Roentgenology	September 29-June 1 once weekly part time	100 00
University of Southern California Division of Graduate Medicine 1200 N State St Los Angeles Calif	28.8 Diagnostic and Therapeutic Radiology	3 months arranged full time	200 00
At Los Angeles County Hospital	28.8 Diagnostic and Therapeutic Radiology	6 months arranged full time	500 00
	28.8 Diagnostic and Therapeutic Radiology	9 months arranged full time	750 00
	28.8 Diagnostic and Therapeutic Radiology	1 year arranged full time	1 000 00
	Course in Diagnostic Radiology and X Ray Therapy	Arranged 1 year full time	750 00
	Course in Diagnostic Roentgenology	Arranged 8 months full time	500 00
	Routine Clinical Course in Diagnostic Roentgenology and Fluoroscopy	Arranged 2 weeks full time	70 00
Cook County Graduate School of Medicine 707 S Wood St Chicago 111	Diagnostic Roentgenology	September 23 10 days part time	100 00
	Clinical and Didactic Course in Diagnostic Roentgenology and Fluoroscopy	October and January 2 weeks full time	120 00
	High and Low Voltage X Ray Therapy	Arranged 1 week full time	60 00
		Arranged 2 weeks full time	110 00
		Arranged 1 month full time	200 00
Northwestern University Medical School 303 E Chicago Chicago 111	Radiation Physics ⁴⁸	January-May part time	10 00 residents 20 00 others
University of Kansas Medical Center 39th St and Rainbow Blvd Kansas City Kan	Radionactive Isotopes	September	Not given
At Stormont Vail Hospital, Topeka	Radiation Therapy for Radiologists	October 26-31 full time	40 00
University of Minnesota Center for Continuation Study Minneapolis Minn			

Postgraduate Continuation Courses for Physicians—July 1, 1953, to Jan 15, 1954—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
RADIOLOGY—Continued			
Columbia University College of Physicians and Surgeons, 630 W 168th St, New York 32, N Y	Radiology PM 30 Introduction to Nuclear Radiation Physics	October 11-January 27 twice weekly part time	\$60 00
At Mount Sinai Hospital	Radiology PM 31 Radiology of the Chest	October 10-27, part time	2.00
	Radiology PM 32 Use of Radioactive Iodine	3 months continuously part time	2.00 00
At Columbia Presbyterian Medical Center	Radiology PM 1 Radiological Physics	January 12-April 2 twice weekly, part time	25 00
	Radiology PM 80 Roentgenographic Interpretation of Diseases of Bones and Joints	October 7-December 23 once weekly part time	150 00
Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn 16 N Y At Jewish Hospital	X Ray Diagnosis	October, 10 weeks once weekly part time	20 00
New York Medical College Flower and Fifth Ave Hospitals 1 E 168th St New York 29 N Y	Diagnostic Roentgenology	Arranged 6 weeks part time	150 00
	Radium and Roentgen Therapy	Arranged 6 weeks part time	150 00
	Roentgen Interpretation and Technique	October and January 3 months full time	300 00
	Advanced Diagnostic Roentgen and Radiotherapy	October and January 3 months full time	300 00
New York Polytechnic Medical School and Hospital, 245 W 50th St New York 19 N Y	Diagnostic Roentgen and Radiation Therapy	October and January, 12 months, full time	1 000 00
	Practical Course in Superficial and Deep X Ray Therapy	Arranged 4 weeks part time	100 00
	Advanced Course in Radiotherapy	Arranged 4 weeks part time	100 00
	651 A Diagnostic Radiology for General Practitioners	September 30-May 5 once weekly part time	100 00
	651 B Diagnostic Radiology for General Practitioners	October 2-May 7 once weekly part time	100 00
New York University Post Graduate Medical School 477 First Ave New York 10 N Y	653-A Radiology Basic Science	September 28-June 18 full time	700 00
	653-A Radiophysics	October 20-February 2, once weekly part time	75 00
Hillcrest Medical Center Twelfth St and Ultee Ave Tulsa Okla	X Ray (Conference of Patients in Hospital)	Arranged once weekly part time	Not given
American Roentgen Ray Society Germantown Hospital Philadelphia 44 Pa At Netherlands Plaza Hotel Cincinnati Ohio	Instructional Courses	September 29-October 2 1-4 days part time	00
University of Pennsylvania Graduate School of Medicine Philadelphia 4 Pa	Radiology 48	September 28-May 22 full time	900 00
Institute of Nuclear Studies Oak Ridge Tenn 41	Advanced Medical Course (Radioisotopes in Medicine)	August 31-September 11 full time	25 00
	Radioisotope Techniques Course (Techniques in Research)	July and August 4 weeks full time	25 00
SURGERY			
College of Medical Evangelists 312 N Boyle Ave Los Angeles 33 Calif	Basic Science in Surgery and Surgical Specialties 55	September 28-June 4 full time	800 00
	Traumatic Surgery	September 29-December 9 twice weekly part time	50 00
	Course in Surgical Technique Clinical Surgery Surgical Anatomy Pre and Post Operative Management	August 3 and October 20 4 weeks full time	825 00
	Personal Course in General Surgery	October 12, 2 weeks, full time	250 00
	Intensive Course in Surgical Technique	2 weeks full time 21	250 00
	Course in Surgery of Colon and Rectum	September 21 October 20 and November 30 1 week full time	125 00
	Course in Surgical Anatomy of the Cadaver Clinical Surgery Pre and Post Operative Management	August 17 and November 9 2 weeks full time	150 00
	Personal Course in Breast and Thyroid Surgery	October 20 1 week full time	150 00
	Personal Course in Gallbladder Surgery	October 20 3 days full time	100 00
	Intensive Review Course Considering Basic Principles in General Surgery	September 21 2 weeks full time	200 00
Cook County Graduate School of Medicine 707 S Wood St Chicago Ill	Personal Course in Esophageal Surgery	October 19 1 week full time	150 00
	Personal Course in Thoracic Surgery	October 12 1 week full time	125 00
	Course in the Treatment of Varicose Veins	Arranged monthly 2 days full time	50 00
	Personal Course in General Surgery	October 5 1 week full time	150 00
	Course in the Treatment of Varicose Veins	Arranged monthly 2 days part time	50 00
	Personal Course in Clinical Surgery	September 28 10 days part time	150 00
	Personal Course in Surgical Diagnosis Pre and Post Operative Management	September 23 10 days part time	100 00
	Personal Course in Thoracic Surgery	September 23 10 days part time	100 00
	Practical and Didactic Course in Proctoscopy and Sigmoidoscopy	September 22 and November 24 3 days part time	50 00
	Surgical Anatomy of the Cadaver	September 24 10 days part time	125 00
	Surgical Technique with Practice	September 23 10 days part time	250 00
Tulane University School of Medicine 1430 Tulane Ave New Orleans La	Surgery Gynecology and Traumatology	January 11-16 full time	50 00
Wayne University College of Medicine, 1512 St Antoine St, Detroit Mich	Surgery Seminar	September 14-December 5 December 7 March 13 once weekly part time	15 00
Joint Committee on Post-Graduate Education 1813 Bedford Ave Brooklyn 16 N Y At St John's Episcopal Hospital	Office Surgery	October 8 weeks once weekly part time	20 00
At Wyckoff Heights Hospital	Practical Aspects of Gastrointestinal Surgery	October 10 weeks, once weekly part time	100 00

Postgraduate Continuation Courses for Physicians—July 1, 1953, to Jan 15, 1954—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
SURGERY—Continued			
Columbia University College of Physicians and Surgeons 630 W 168th St New York 32 N Y At Mount Sinai Hospital	Surgery PM 30 Surgery of the Gastrointestinal Tract	October 13–November 7 full time	\$150.00
	Surgery PM 1 Clinical Surgery	July 1 6 months full time	230.00
	Surgery PM 1 Clinical Surgery	July 1 12 months full time	400.00
	Surgery PM 1 A Surgery	July 1 6 months full time	230.00
	Surgery PM 1 A Surgery	July 1 12 months, full time	400.00
	Surgery PM 2 A Studies in Cardio-vascular Surgery	January 1 6 months full time	230.00
At Columbia Presbyterian Medical Center	Surgery PM 2 A Studies in Cardio-vascular Surgery	January 1, 12 months full time	400.00
	Surgery PM 2 Principles of Cardio-vascular Surgery	January 1 6 months full time	230.00
	Surgery PM 2 Principles of Cardio-vascular Surgery	January 1 12 months full time	400.00
Manhattan General Hospital 807 Second Ave New York, N Y	Rhinoplasty and Otoplasty	September, 2 weeks, full time	250.00
New York Medical College Flower and Fifth Ave Hospitals 1 E 104th St New York 29 N Y	Surgical Technique Thoracic Surgery	Arranged 50 days, part time Fall 3 weeks, part time	\$75.00 \$75.00
	Surgical Anatomy Combined Surgical Course **	Arranged 2 weeks part time October and January, 3 months, full time	150.00 850.00
New York Polyclinic Medical School and Hospital 840 W 60th St New York 19 N Y	Clinical Surgery	October and January, 6 weeks full time	100.00
	Clinical and Operative (Cadaver) Surgery	October and January 6 weeks full time	200.00
	Traumatic Surgery **	Arranged 2 months, part time	200.00
	Thoracic Surgery	Arranged	200.00
	600-A Surgery (Graduate Course)	September 28–June 18 full time	700.00
	601 A Review of General Surgery (for Specialists)	October 12–November 7 full time	800.00
New York University Post Graduate Medical School 477 First Ave New York 16 N Y	603-A Recent Advances in Surgery	September 21–October 3 full time	200.00
	604 A Trauma (Excluding Fractures)	November 30–December 5 full time	125.00
	606 A Diagnosis and Treatment of Trauma	December 7–12, full time	90.00
	6010-A Trauma of the Genitourinary System	September 8–October 18 once weekly part time	50.00
Frank E Bunts Educational Institute 2020 E 93rd St Cleveland Ohio	Current Problems in General Surgery	October 23–29 full time	15.00
Hillcrest Medical Center Twelfth St and Utica Ave. Tulsa Okla	General Surgery (Postgraduate Course) **	Arranged, once weekly, part time	None
University of Oregon Medical School 3181 S W Sam Jackson Park Rd Portland 1 Ore	General Surgery	October 20–30, 5 days	50.00
University of Pennsylvania Graduate School of Medicine Philadelphia 4 Pa	General Surgery **	September 22–May 22, full time	900.00
	Advances in Medicine and Surgery	September 21–25 full time	**
University of Tennessee College of Medicine, 847 Union Ave Memphis Tenn At John Gaston Hospital	Primary Trauma	July 15–17 full time	50.00
University of Wisconsin Medical School 418 N Randall Ave Madison, Wis	Observation Course in Surgery	Arranged 1–6 months, full time	100.00 per month
American College of Physicians 4200 Pine St Philadelphia Pa At University of Utah College of Medicine	Present Day Therapy and Its Physiologic Basis **	November 9–13 full time	30.00 members 60.00 non members
TROPICAL MEDICINE			
New York University Post Graduate Medical School 477 First Ave New York 16 N Y	720-A Tropical Medicine	January 4–February 10, full time	300.00
UROLOGY			
College of Medical Evangelists 812 N Boyle Ave Los Angeles 33 Calif **	General Urology	January 6–March 3 once weekly part time	30.00
At Ambassador Hotel Los Angeles	Genito Urinary Disease	November 16–20 full time	50.00
Army Medical Service Graduate School Walter Reed Army Medical Center Washington 12 D C	Postgraduate Seminar in Urology **	September 7–9 full time	None
Cook County Graduate School of Medicine 707 S Wood St, Chicago Ill	Intensive Course in Urology	September 28 2 weeks full time	225.00
Iowa Academy of General Practice 912 Equitable Bldg Des Moines Iowa At Hotel Warden Fort Dodge	Urology Medicine	November 12 1 day full time	Non members 5.00 members free
State University of Iowa College of Medicine Iowa City Iowa At University Hospital	Postgraduate Conference	Monthly 1st and 3rd Wednesday, part time	None
American Urological Association 1120 N Charles St Baltimore Md At Los Angeles Calif	Postgraduate Seminar in Urology	November 5 days full time	75.00
New York Polyclinic Medical School and Hospital 845 W 60th St New York 19 N Y	Urology Instrumental Urology Operative Surgery for Specialists	October 1 8 months full time Arranged 4 weeks part time Arranged 2 months part time	800.00 75.00 150.00
New York University Post-Graduate Medical School, 477 First Ave New York 16 N Y	672 A Urology (Graduate Course) 674 A Refresher Course in Basic Urology	September 28–June 18 full time November 16–20, full time	700.00 60.00

Postgraduate Continuation Courses for Physicians—July 1, 1953 to Jan 15, 1954—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
UROLOGY—Continued			
Oswald Swanney Lowsley Medical Group 111 E 71st St New York 21 N 1	Urological Diagnosis and Treatment	1 year full time	\$750 00
At St. Clare's Hospital			
American Urological Association Suite 9B, Doctors' Building, Charlotte N C	Postgraduate Seminar in Urology	Fall 6 days full time	60 00
At New Orleans La	Urology (Seminar and Bedside Rounds)	Arranged once weekly part time	None
Hillcrest Medical Center, Twelfth St and Utice Ave, Tulsa Okla	Urology 48	September 28-May 22, full time	660 00
University of Pennsylvania Graduate School of Medicine Philadelphia 4 Pa			
VENEREAL DISEASE			
Public Health Service Washington 25, D C 44	21st Y D Postgraduate Course	October 12-16 full time	None
At Hot Springs National Park			
Wayne University College of Medicine 1612 St Antoine St, Detroit, Mich	Conference on Venereal Disease	September 14-December 5 Decem-ber 7 March 13 12 weeks once weekly, part time	15 00
At Receiving Hospital			

Sponsoring and Contributing Agencies

- 1 Medical Society of the County of Kings and State University of New York College of Medicine.
- 2 Arthritis Rheumatism Foundation.
- 3 Maryland Heart Association.
- 4 Minnesota Heart Association.
- 5 The Endocrine Society Oklahoma City.
- 6 Nebraska State Medical Society, Lincoln and Nebraska State Department of Health Lincoln and University of Nebraska Extension, Lincoln.
- 7 University of Minnesota Medical School.
- 8 Institute of Industrial Health.
- 9 Public Health Service Division of Occupational Health Cincinnati and Department of Dermatology University of Cincinnati.
- 10 Kansas State Medical Society and Kansas State Board of Health.
- 11 Institute of Industrial Health and University of Michigan Law School.
- 12 Colorado Division of the American Cancer Society.
- 13 Oregon Chapter of the American Cancer Society.
- 14 Arkansas State Medical Society and the Arkansas Academy of General Practice.
- 15 Connecticut State Medical Society.
- 16 Medical Association of Georgia and Georgia Academy of General Practice.
- 17 University of Illinois College of Medicine Stritch School of Medicine and Chicago Medical School.
- 18 Committee on Postgraduate Education Massachusetts Medical Society.
- 19 Wyeth Inc.
- 20 Cancer Association Heart Association and Tuberculosis Association.
- 21 North Carolina State Board of Health.
- 22 South Carolina Academy of General Practice and the Alumni Association of the Medical College of South Carolina.
- 23 Tennessee Academy of General Practice.
- 24 Dallas Southern Clinical Society.
- 25 Washington State Medical Association and Washington State Department of Health.
- 26 Chicago Medical Society.
- 27 Marquette University School of Medicine.
- 28 Joint Committee of State Mental Hospitals and State Department of Mental Health.
- 29 Menninger Foundation and Veterans Administration Hospital Topeka.
- 30 Kansas State Obstetrical Society and Kansas State Medical Society.
- 31 Puerto Rico Department of Health.
- 32 Stanford University School of Medicine.
- 33 Colorado Ophthalmological Society.
- 34 Temple University School of Medicine.
- 35 Puerto Rico Health Department and University of Puerto Rico School of Medicine.
- 36 Institute of Physical Medicine and Rehabilitation.
- 37 National Foundation for Infantile Paralysis.
- 38 Minnesota Trudeau Society and the Minnesota Chapter of the American College of Chest Physicians.
- 39 Adirondack Counties Chapter of the New York State Academy of General Practice.
- 40 Ohio Trudeau Society Ohio Tuberculosis and Health Association and Ohio State Medical Association.
- 41 U S Atomic Energy Commission.
- 42 Los Angeles Urologic Research Convention.
- 43 Arkansas State Board of Health.

Footnotes

- 44 No fee for interns and residents of either hospital. No fee for staff members of San

Diego County Hospital \$40 fee for Mercy staff members including physiology course

45 Designed to prepare candidates for the anatomy examination of the American boards of general surgery and the surgical specialties

46 Surgery \$910 00

47 Leading to degree of Master of Medical Science in surgery medicine obstetrics and gynecology anesthesiology otolaryngology, pediatrics radiology and urology

48 Formal basic science course in preparation for specialty board certification

49 Attendance is encouraged from the following individuals

a Medical Corps officers of the Armed Forces on active duty

b Medical Corps officers of the Armed Forces not on active duty

c Physicians from other federal agencies

d Other civilian physicians desiring to attend

50 Application procedure Applications should be forwarded so as to reach the addressees listed below not later than six weeks prior to the opening date of the course

a Applications from Army Medical Corps officers on active duty and full time Civil Service physicians on duty at Army installations will be forwarded to the Office of the Surgeon General Department of the Army Washington 25 D C Attention Personnel Division Career Management Branch

b Applications from Army Reserve Medical Corps officers not currently on active duty will be forwarded through channels to the Army Area Commander

c Applications from National Guard medical officers should be forwarded through channels to the National Guard Bureau Washington 25 D C

d Applications from medical officers from other branches of the Armed Forces should be forwarded through regularly established channels

e All other applications should be forwarded to the Commander of the installation conducting the course

51 Course is designed for attendance by individuals who are board qualified and/or board certified chiefs or assistant chiefs of services and others well advanced in the study of this specialty

52 Course is designed for attendance by individuals partially qualified in the specialty or officers responsible for medical treatment in this specialty

53 Physicians in Cleveland area and Interns and residents no charge Physicians outside Cleveland area \$40 00

54 July 6, July 20 August 3 August 17, September 14 October 12 October 26 November 9, November 30

55 Formal basic science course \$125 00 per quarter \$12 00 per week for short periods

57 Scholarships for tuition available through State Chapters of American Cancer Society in Idaho Montana Oregon and Alaska

58 No fee for interns and residents

59 Military officers no fee

60 Address Dr W M Dabney, Secretary Crystal Springs Miss

61 Registration fee only Full time faculty members of Creighton and University of Nebraska medical schools, residents and interns of Omaha hospitals are guests of the Society without payment of registration fee Senior medical students of Creighton and University of Nebraska medical schools attend all sessions as curricular requirements

62 Certificate of completion of course granted by University of Oklahoma School of Medicine

63 Alumni \$25 00 non alumni \$75 00 students matriculating in Graduate School of Medicine on September 28 1953 \$15 00

64 This course is available only to physicians certified

65 An acceptable thesis leads to the degree of Master of Medical Science Program is specifically designed to accommodate the candidate for specialty board certification Credit for one year in lieu of a hospital residency year will be given by certain specialty boards for this course

66 Colorado Utah New Mexico Montana and Wyoming

67 Open only to physicians who have been formally approved and accepted for training in psychoanalysis by the Admissions Committee of the Los Angeles Institute for Psychoanalysis

68 Formal basic science courses in clinical neurology neuroanatomy neurophysiology neuropathology neuroendocrinology and electroencephalography

69 Preparation for certification by the American Board of Neurology and Psychiatry

70 A special short course designed primarily for staff members of mental institutions Emphasis on neurology

71 Members of State Obstetric and Gynecologic Society no fee

72 Including manikin obstetrics and operative gynecology (cadaver)

73 Includes 1 week course in audiology fee \$100 00

74 Basic course—1 week \$100 00 clinical course—1 week \$75 00

75 Except July and August

76 In preparation for specialty board examination

77 Basic ophthalmology No 488 clinical and pathology No 501 refraction and motor anomalies No 504

78 Including cadaver, eye ear nose and throat and refraction

79 Including cadaver ophthalmology and refraction

80 For four days \$25 00 either part

81 Fully accredited by the American Board of Orthopedic Surgery

82 Designed to aid in meeting the requirements of the examination of the special board in neurological surgery

83 Course approved for board certification

84 \$200 00 per lecture \$15 00 for series of 8 lectures

85 No fee for interns and residents of either hospital No fee for staff members of County Hospital \$300 00 fee for Mercy staff members including anatomy course

86 Registration fee

87 Leading to the Master of Public Health Degree

88 \$300 00 for nonresidents

89 Designed primarily for individuals doing research or teaching in field of public health and preventive medicine

90 Nonmembers pay \$150 per course or a maximum of \$500 No charge for graduate students of radiology and members of the American Roentgen Ray Society

91 July 6 August 8 September 14 September 28 October 12 October 26 November 9 December 7

92 Including cadaver surgery and gynecology 93 Including general surgery, orthopedic surgery and physical medicine

94 Certificate of completion of course granted by University of Oklahoma School of Medicine. 95 For specialists

MISCELLANY

THE DISTRIBUTION AND USE OF GAMMA GLOBULIN

Poliomyelitis—Reports by Hammon and his associates (*THE JOURNAL* Oct 25, 1952, and April 11, 1953) are available on the epidemiological studies that form the basis for the use of gamma globulin in the prophylaxis of paralytic poliomyelitis. The children investigated ranged in age from 1 to 11 years and the doses used were 4, 7, or 11 cc, depending on the weight of the child. The average dose approximated 0.14 cc per pound of body weight.

Significant protection was demonstrated from the second through the fifth weeks following injection and diminishing protection was evident from the sixth to the eighth weeks. There was no significant difference in the number of cases of poliomyelitis in the treated and control groups in the week following injection, but there was evidence of mitigation of paralysis in the cases occurring in the children who had received gamma globulin. This evidence is the basis for the conclusion that gamma globulin will be most effective if given shortly before or as soon as possible after infection. It is of no value after clinical symptoms of the disease have become apparent.

Criteria for Diagnosis—It will be noted that the basis for allocation to the states depends on the reported incidence of the disease, with the suggestion that the incidence of paralytic cases may be used as a control in making additional and supplemental allocations.

To insure uniform reporting it has been suggested that physicians and health departments adopt criteria for diagnosis similar to those formulated by the National Conference on Recommended Practices for the Control of Poliomyelitis. Following is an excerpt from the suggested criteria:

Diagnostic criteria of paralytic or non-paralytic poliomyelitis should generally include three or more of the following:

- (1) history compatible with poliomyelitis
- (2) fever
- (3) stiff neck and/or stiff back
- (4) 10 to 500 cells per cc of spinal fluid taken during the acute or early convalescent period of the disease
- (5) spinal fluid protein elevated above normal limits
- (6) demonstrable muscle weakness or paralysis

"Cases which present only (1) history compatible with poliomyelitis, and (2) fever, should be classified as presumptive, (abortive) poliomyelitis.

"Paralytic cases are defined as those in which definite weakness or paralysis has been detected and persisted during at least two examinations made at intervals of at least several hours. Results of an examination for paralysis of muscles of the extremities or trunk may be very unreliable during the period of muscle tenderness or 'spasm'."

Gamma Globulin—Gamma globulin is the name given to one of several fractions of the protein component of human plasma. It is comparable with the product officially known as immune serum globulin. Gamma globulin is prepared commercially by a method involving a series of precipitations with varying concentrations of alcohol under controlled conditions of acidity and low temperature. An average donation of blood (500 cc) yields 7 cc of a 16% solution of gamma globulin. This represents a single recommended dose for the prophylaxis of poliomyelitis in a 50 lb (6 to 7-year-old) child. The production capacity of existing fractionating plants is limited.

Gamma globulin is available as a 16% solution. This solution is opalescent and somewhat viscous, necessitating injection through a no. 18 or 20 needle for quantities required for the prophylaxis of poliomyelitis. Injections should be made intramuscularly, using a separate syringe and needle for each subject. Gamma globulin should never be given by the intravenous route.

The use of separate syringes is recommended because of the danger of contamination of the syringe with blood containing the virus of homologous serum hepatitis. This may occur when one attempts to withdraw blood in order to be certain that the needle point is not in a vein. No instance of hepatitis has been recorded following the use of gamma globulin that has been prepared and administered in the manner described.

Intramuscular injection of gamma globulin is not accompanied by any significant reactions. The danger of local or systemic reactions must, however, be considered if repeated injections are contemplated.

MEDICAL MOTION PICTURES

Food as Children See It: 16 mm. color sound, 18 minutes. Produced in 1952 by and procurable on loan or purchase from General Mills Inc. Film Department 400 Second Ave. S. Minneapolis.

This film pictures a talk by Dr. Miriam E. Lowenberg, head of the department of foods and nutrition, Pennsylvania State College, to mothers of preschool children. The talk is limited to the presentation of food as preschool children see it. It does not attempt to answer all problems concerned with child feeding. The mothers are urged to serve foods from each of the Basic Seven food groups every day. Dr. Lowenberg points out that foods should be colorful, simple, and appealing to the eye. A good variety of foods with an occasional surprise, such as fruit hidden in custard, is preferable. Lots of finger foods are in order for the children of this age. Emphasis is also placed on maintaining a cheerful atmosphere during mealtime. Children should be encouraged to relax just before eating, and mealtime conversation should remain happy and cheerful. The photographic quality is good, however, the sound quality is below average. This motion picture is a good point of departure around which a discussion could be built. It is suitable for showing at well child conferences and in conjunction with preschool mothers' clubs. Pediatricians could see it for giving discussions before clubs.

Personal Hygiene for Boys: 16 mm. color sound showing time 10 minutes. Produced in 1952 by and procurable on purchase (\$100) from Coronet Films 65 E. South Water St. Chicago 1 and on rental from Ideal Pictures Corporation 58 E. South Water St. Chicago 1 or your local film library.

As the title indicates, this is a film covering certain of the personal hygiene aspects of daily living for boys. It emphasizes cleanliness of the skin, hair, nails, and teeth, beginning procedures in shaving, and other similar items. To a lesser degree, pointers are given on exercise, proper diet, and certain safe guards against becoming infected by common diseases. The motivation of the film should appeal strongly to teenage youngsters who desire to present a good appearance and to build strong, healthy bodies. The picture is attractive and well done. The photographic and sound quality are very good. It should be of greatest use at junior and senior high school levels and may have wider application in youth groups and clubs. A study guide is available from the producer.

Personal Health for Girls: 16 mm. color sound showing time 10 minutes. Produced in 1952 by and procurable on purchase (\$100) from Coronet Films 65 E. South Water St. Chicago 1 and on rental from Ideal Pictures Corporation 58 E. South Water St. Chicago 1 or your local film library.

Emphasis is given to cleanliness as a means of maintaining good health and appearance. The film covers such topics as care of the teeth, hair, and skin, proper eating habits, adequate rest, exercise, and the importance of clean clothing. Safeguards against infection are briefly covered, along with the appropriate use of cosmetics and personal hygiene pointers on menstruation. The photographic and sound quality are very good. The film is suitable for persons of junior and senior high school ages. A study guide may be obtained from the producer.

MEDICAL LITERATURE ABSTRACTS

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Anticholinergic Drugs and Gastric Secretion.—The effects on gastric secretion in man of six anticholinergic drugs namely, methantheline (Banthine), 'prantal' (N,N, dimethyl-4 piperidylidene-1,1-diphenyl methane methyl sulfate) and four new preparations designated as AP 193 (diethylaminoethyl beta hydroxy alpha phenyl cyclohexane acetate), U 0407 (pyrrolidyl ethyl phenylcyclopentenyl acetate etho-bromide), U-0385 (diphenyl-[2-piperidyl ethyl] acetamide methobromide), and U-0229 (alpha, alpha diphenyl gamma [1-piperidyl] butyramide hydrochloride) were compared. The authors' studies were limited to patients secreting acid gastric juice continuously

under basal conditions. The stomach was aspirated continuously, the contents being collected every 15 minutes, the volume and free acidity were measured for each specimen. Each test was continued for approximately three hours or until the original levels were regained. The effects of the drugs on basal secretion were investigated in a total of 359 experiments, with the compounds administered intramuscularly in 165, orally (by gastric tube) in 176, and intraduodenally in 18. The occurrence and severity of side-effects were estimated by inquiry concerning appropriate symptoms and by the following measurements: output of saliva, degree of mydriasis and the pulse rate and blood pressure. The influence of U 0385 and U-0229 on the nocturnal and the 24 hour secretion was studied in a small group of patients. The continuous gastric secretion before, during and after the intravenous infusion of U 0229 was measured in seven patients with duodenal ulcer. The effects of methantheline, "prantal," U 0407, U 0385 and U-0229 on gastric secretion stimulated with a histamine analogue (3 beta-aminoethylpyrazole) were investigated in 34 experiments. Compounds U 0229, U 0407, methantheline and "prantal," listed in their order of potency, suppressed basal gastric secretion temporarily when given intramuscularly in sufficient amounts. Only U-0229 and U-0385 inhibited the free acidity consistently after oral administration. Compounds U 0407, methantheline and "prantal" decreased gastric acidity only occasionally after oral administration. AP-193 was totally ineffective. The intravenous infusion of 6 to 11 mg of U 0229 induced prolonged anacidity in the majority of a group of patients with duodenal ulcer. Compounds U-0229, U 0385, U-0407, methantheline and "prantal" delayed, but did not suppress, the gastric secretory response to 3 beta aminoethylpyrazole. The three anticholinergic drugs tested, U 0407, U-0385 and U-0229, did not inhibit secretion maximally stimulated with repeated injections of 3 beta aminoethylpyrazole. The frequency and duration of anacidity increased, generally, though not exclusively, in proportion to the incidence and severity of side-effects. The most potent antisecretory compounds, U 0229 and U-0385, produced symptoms such as dryness of the mouth and throat, blurring of vision and delay in urination, more often than less effective compounds.

Effects of Methantheline on Pain and Motility.—The effects of methantheline (Banthine) bromide on the pain of duodenal ulcer and on antral gastric motility in 8 men and 4 women between the ages of 25 and 54 with this disease were studied. In preparation for the study, all patients were fasted from 14 to 16 hours, during which time all medication was stopped. Antral gastric motility was recorded by a balloon photokymographic technique with the patient reclining flat in the supine position on a comfortable bed. Pain was registered on the photokymograph by means of a light signal activated when the patient pressed a small hand switch. After a control period of observation of approximately one hour, methantheline in a dose of 100 mg was administered orally with about 15 cc of tap water. The recording was then continued for approximately another hour. While the complete mechanism for the production of pain of duodenal ulcer is not clear the present study revealed that in those patients with an intermittent type of pain there was a positive correlation between the occurrence of type 2 antral contractions (phasic pressure waves of the gastric antrum) and the subjective evidence of pain. Methantheline was thus found to be an effective agent for inhibiting type 2 antral contractions in patients with duodenal ulcer and produced results similar to those observed previously in a group of patients with duodenal ulcer who had undergone vagotomy.

Mechanism of Pain in Peptic Ulcer.—In studying the mechanism of ulcer pain, at least two factors must be considered, namely, hydrochloric acid and gastric motility. Since both of these are variables, it is impossible to evaluate the effect of either factor upon ulcer pain without controlling the other. In the authors' study the acid values were artificially raised to the high levels usually associated with ulcer pain, by administering orally 200 cc of 0.1 normal hydrochloric acid to 88 patients

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Titles marked with an asterisk (*) are abstracted.

having an active ulcer with typical pain within the preceding 24 to 48 hours. In this manner the role of the remaining variable, motility, could be correctly appraised. In 66 patients 2 oz. (60 gm) of barium sulfate were added to the hydrochloric acid and the patients observed fluoroscopically at frequent intervals for a period of 30 minutes. Determinations of gastric acidity before and after the administration of acid and of the suspension of acid and barium were made in 25 patients. Despite high acid values, only 37 of the 100 "acid tests" performed on the 88 patients produced pain. From this observation alone the concept that hydrochloric acid per se is the cause of ulcer pain can be questioned. On the contrary, the authors' studies indicate that ulcer pain in the uncomplicated case is invariably associated with abnormal motility. Pain appeared with the onset of abnormal motility and ceased when motor function returned to normal. This abnormality consisted of incoordinated activity of the antral evacuation mechanism with or without localized spasm. The 39 patients with negative tests on whom detailed fluoroscopic observations were carried out showed none of these abnormalities. Most of them showed normal motility with prompt evacuation. The remainder had quiet in active stomachs with a patent pylorus, and gastric emptying proceeded normally when the patient was placed in the recumbent right anterior oblique position. The use of drugs affecting motility afforded further opportunity for studying the relationship of ulcer pain and motility. Twenty-six patients were given methantheline or a new cholinergic blocking agent (SKF-1637), with prompt relief of pain in 25. This coincided exactly with cessation of abnormal motility and relaxation of the stomach. From these observations the concept is advanced that abnormal motility is the fundamental mechanism through which ulcer pain is produced. For the production and perception of ulcer pain, there must be (1) a stimulus (hydrochloric acid or others less well understood), (2) an intact motor nerve supply to the stomach and duodenum, (3) altered gastroduodenal motility, and (4) an intact sensory pathway to the cerebral cortex.

GP (J Am Acad Gen Practice), Kansas City, Mo

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Carbon Dioxide Inhalation Therapy of Neuroses.—Over a three year period approximately 6,200 carbon dioxide inhalation treatments were administered to 213 patients with various psychoneurotic conditions. Using an anesthesiologist's gas machine, Moriarty administered a mixture of 30% carbon dioxide and 70% oxygen. The author's method, which represents a modification of Wilcox's technique, permits the patient to reach a deep level of anesthesia without a protracted period of hyperventilation. Usually after 25 to 40 respirations the patient reached a sufficient level of coma, and the mask was then removed, he waked within 40 to 60 seconds after the removal of the mask. The whole inhalation procedure may be administered in approximately five to six minutes. In order to facilitate the therapeutic process, two or more carbon dioxide treatments were administered to many patients during a therapeutic session, allowing about 10 minutes for rest and psychotherapeutic interviewing between the inhalation procedures. Results obtained in the first 66 patients are analyzed in some detail and seem representative of the total group of 213. Of the 66 patients, including seven nosological groups, namely, anxiety neuroses, character neuroses, psychosomatic reactions, alcoholics homosexuals, depressive reactions and conversion hysterics, 26 (39%) were much improved, 28 (43%) were improved, and 12 (18%) were therapeutic failures. The fact that some patients made an excellent response with as few as 8 treatments and others required 70 or 80 treatments before showing a sustained improvement of equal degree indicates the tremendous variability of response to carbon dioxide therapy and emphasizes the need for adequate treatment. As a result of his experience the author states that carbon dioxide inhalation therapy produces favorable effects in many anxiety states and phobic reactions, some character neuroses, certain psychosomatic conditions like spastic colitis and migraine headaches, and some alcoholic problems. It is usually very desirable to utilize psychotherapy in close conjunction with this neurophysiological treatment. The neurophysiological action of the carbon dioxide on the nerve cell is to raise the membrane potential which in turn raises the threshold of stimulation of the nerve, decreases the speed of conduction of impulses, and increases the height and prolongs the duration of the action potential. The central effects of carbon dioxide include a pronounced increase of cerebral blood flow, increase in the respiratory rate and oxygenation of the blood, and a shift of the cortical pH to the acid side. In general, carbon dioxide first inhibits the higher (cortical) centers and releases the lower (brain stem) centers. Secondly, the latter are inhibited in progressive fashion, in reverse order of their phylogenetic development. The healing mechanisms of carbon dioxide therapy are not clearly understood but probably involve a breaking up of pathological reverberating circuits in the nervous system, thereby allowing the homeostatic mechanisms of the organism to take over again. In addition, emotional tensions are released and unconscious material becomes more accessible, facilitating the psychotherapeutic process.

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- *Physiological Effects of Operations for Duodenal Ulcer R H Smithwick. —p 77
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Physiological Effects of Operations for Duodenal Ulcer.—The physiological aim of the surgical treatment of duodenal ulcer is to reduce the digestive power of the gastric juice, but while Wangensteen believes that to accomplish this achlorhydria to stimulation by histamine is desirable, Dragstedt feels that reducing the amount of acid production to within the normal range is sufficient. In evaluating these points of view Smithwick describes the method he uses to determine the gastric acidity of ulcer patients. A Levin tube is placed with the tip at the mid point of the stomach or gastric remnant under fluoroscopic control. Gastric juice is collected for one hour by continuous suction the subject having fasted overnight, this is the basal test. Then 80 cc of peptonized beef broth is introduced into the stomach and aspirated after 20 minutes. The gastric contents are again aspirated for a one hour period, this is the broth test. Fifteen units of insulin are then injected intra-

venously. Blood sugar levels are obtained before and at half hour intervals over a two hour period following the administration of insulin. Gastric juice is aspirated by continuous suction until two one hour samples are obtained. The free acid values for all four one hour specimens are determined by electrometric titration to a pH of 3.5. The pH of each specimen is also recorded. The specimen that contains the largest amount of acid following the injection of insulin is taken as the response to vagal stimulation, this is usually the second of the two one hour specimens. The early physiological effects of various operations for duodenal ulcer were determined according to the described method. Wide variations were found. Recurrent ulceration does not occur if achlorhydria is present in the fasting stomach, following a potent food stimulus and after vagal stimulation as well. The only operations which can be depended upon to consistently produce achlorhydria under these circumstances are those involving resection of at least the distal one half of the stomach together with the vagus nerves. There appears to be a close relationship between the more serious untoward side effects of operations for duodenal ulcer and the size of the gastric remnant. The best clinical results are obtained by patients having the larger gastric remnants. Since the physiological effects of hemigastrectomy combined with resection of the vagus nerves compare favorably with those following operation involving the removal of a larger portion of the stomach, and since the clinical results are superior, this procedure is more likely to supplant subtotal gastrectomy alone than any other procedure studied to date.

South Dakota J Med & Pharmacy, Sioux Falls

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- Struma Reticulosa Reconsideration of Undifferentiated Tumours of Thyroid D B Brewer and J W Orr—p 193

Structural Changes Around Nails and Screws in Bones—

The changes taking place around intraosseous stainless steel nails were studied in 12 instances of fractures of the neck of the femur from six days to five years after operation. The entry of the nail shatters a few trabeculae and causes a small amount of hemorrhage within the bone. The repair of this damage leads to the encapsulation of the nail by fibrous tissue, which forms a smooth membranous lining to the nail track. This is well developed in five or six weeks, and new bone appears in the fibrous wall about the same time. Further bone deposition in the fibrous tissue and pre-existing trabeculae forms, in 20 weeks or over, a more or less continuous bony shell around the nail track. This new bone gradually becomes consolidated, and at 2½ years plates of lamellated bone are seen which at five years are endowed with Haversian systems and then resemble true bone cortex, continuous around the lip of the track with the external cortex of the femur and covered by a layer of fibrous tissue continuous with the external periosteum. Stainless steel containing 18% of chromium and 8% of nickel appears to be noncorrodible and inert in human tissues. Screws were used to secure steel plates along the femoral shaft in some of the aforementioned cases in which nails had been used for the fractured femoral neck. The region of the screw holes was examined histologically in two cases 11 days and 5 weeks respectively, after operation. The tissue reaction around the screws seems to resemble that around the three flanged nails, so far as the medullary tissues and the intramedullary course of the screws are concerned. The absence of reaction in the cortical tunnel may be in part explained by the scarcity of vascular connective tissues from which the repair tissue could spring, but also the cortical bone and the cellular tissues within the Haversian canals in

the immediate vicinity of the screw hole are dead, killed no doubt, as Watson Jones stresses, by heat from the high speed mechanical drill used to prepare tracks for screws through compact bone.

Nordisk Medicin, Stockholm

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Prophylaxis and Therapy of Bishydroxycoumarin Poisoning

—Dalgaard tabulates from the literature 80 deaths from hemorrhage during anticoagulation treatment with bishydroxycoumarin (Dicumarol). The hemorrhage in most serious cases is localized to the regions with pathological changes, and exact diagnosis before the start of anticoagulation treatment is therefore important. The contraindications to the use of bishydroxycoumarin are essentially those laid down by Allen. The treatment has been considered as contraindicated in renal insufficiency, but Sachs has treated nine patients with chronic renal insufficiency with bishydroxycoumarin in ordinary doses without any unusual effect, he warns against the use of bishydroxycoumarin in cases with anuria and in more marked hematuria. The most important contraindication is lack of adequate and reliable laboratory control. Owren's method is recommended for control of bishydroxycoumarin treatment. The dosage must be individualized on the basis of the patient's reaction to a fixed initial dose and must, if necessary, be varied throughout the treatment. The average daily dose for maintenance of prothrombin concentration within the optimal therapeutic limits (between 10 and 20 to 30%) is 50 to 60 mg. Some patients tolerate only about 30 mg daily, others, more resistant, tolerate up to 125 mg daily. Bishydroxycoumarin treatment has hitherto largely been carried out as an intermittent treatment, with relatively large doses at intervals of a day or possibly several days, a more even effect is reached by small doses given daily. In simple vitamin K deficiency, as in obstructive jaundice and in hemorrhagic diathesis in the newborn about 5 mg of menadione bisulfite is sufficient. It is thought that vitamin K₁ should be applied in all cases where the prothrombin activity is to be increased as rapidly as possible, but where it is desirable to increase the prothrombin activity only to the therapeutic level the synthetic preparations are preferable. A single dose of 500 mg vitamin K₁ given orally acts almost as rapidly and effectively as the same dose intravenously except in patients who vomit or have gall-bladder fistula or gallbladder drainage. Blood transfusion is of some value but seldom necessary unless there has been massive hemorrhage, when the purpose is rather to compensate for the blood lost than for the prothrombin.

Presse Medicale, Paris

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- Action of Cyclo-Hexyl 1 Phenyl Pyrrolidine 3 Propanol 1 Hydrochloride on Symptoms of Parkinson's Disease Comparative Study with Other Therapeutics J Sigwald—p 127
- *Physiology of Organism Subjected to Deep Cooling J Gajda—p 128

Physiology of Organism Subjected to Deep Cooling.—As a result of his experiments performed on rats, the author states that it is possible to cool a homohermal animal by placing it in an air tight jar, which then is immersed in ice-cold water, i.e., by withdrawing from the animal more heat than it can produce in its extreme fight against the cold. The term "direct forcing by external cold" is used to describe this technique. When the oxygen pressure of the inhaled air is reduced below a certain value, the intensity of the intraorganic combustion becomes a dependent variable of this pressure, below a certain preliminary pressure, hypothermia runs an equal course with the depression. The atmosphere in the air tight jar grows poorer

and poorer in oxygen, whereas it gets richer in carbon dioxide. Under the effect of the resulting hypoxia and hypercapnia, the closed in animal grows gradually colder and within one and a half to two hours its rectal temperature drops to 15 C (59 F). At this stage the animal is thoroughly anesthetized. It has become a poikilothermal, because it does not show any tendency to increase its temperature when it is placed again in the open air at an external temperature of 15 C (59 F). The animal is able to live for 20 hours in this condition of experimental poikilothermism, a true physical anesthesia, which has been used currently for physiological operative experiments. Due to the low blood pressure there is very little bleeding and the risk of asphyxia is considerably diminished. The animals whose temperature had been reduced to 15 C recovered completely by external warming even after several hours of poikilothermism. There were no immediate or late undesirable side-effects. Cooling for one hour could be repeated 20 times in the course of one month. Three stages were distinguished in the course of cooling as follows: the initial stage of hypothermia during which the animal's temperature is not lower than 20 C (68 F) and there is excess oxidation, the second phase of cooling, for which the term experimental poikilothermism has been coined, occurring between body temperatures of 20 C and 15 C (in this phase the rat resembles the frog in its reaction to hypothermia), the third stage of physical anesthesia is reached at a temperature of about 15 C. If the cooling is continued below 15 C, first respiration ceases (stage of apparent death), and if the temperature is still further reduced below 8 C (46.4 F), the heart ceases to beat. Observations on hibernating mammals such as the spermophilus (a genus of marmots) suggest that the result of deep cooling in homothermal animals which were thus transformed by the author into poikilothermal animals should be distinguished from the dormant state in which hibernating mammals pass the winter. The hibernating animal is able to warm itself automatically by its own means if the cooling becomes too deep and is then able to offer resistance to temperatures much lower than those that have provoked hibernation. Cooling and warming are active physiological phenomena in the hibernating mammal, but passive phenomena in the author's experimental animals. Despite the fact that deep cooling has been artificial and experimental, it is to be considered as a physiological condition observed in the course of phylogenesis as well as of ontogenesis.

Schweizerische medizinische Wochenschrift, Basel

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Problem of Proteinuria and Its Differential Diagnostic Significance F Lasch—p 153

Criteria of Success of Treatment in Pulmonary Tuberculosis

—According to Rotach, results of chemotherapy in pulmonary tuberculosis should be evaluated on the basis of the roentgenologic aspect rather than on single clinical symptoms. Improvement in clinical symptoms frequently may not be accompanied by a parallel morphological regression in the roentgenologic picture. Subjective well being, increase in body weight, drop in erythrocyte sedimentation rate and decreased amount of sputum may occur fairly regularly under chemotherapy, but should not be considered as a decisive turning point to recovery in the individual case. The disappearance of *Mycobacterium tuberculosis* from the sputum also is a questionable criterion for the evaluation of the effect of chemotherapy, because disappearance of the bacilli may frequently result from chemotherapy while cavities may remain unchanged. Closure of the lesions can be proved only by negative bacteriological findings and by the simultaneous disappearance of the cavities under thorough roentgenologic control. Cavity closure can be demonstrated by tomography only. Regression of pericavernous infiltration and breaking down of caseous masses in the wall of the cavity may be the results of chemotherapy, thus the formerly clearly visible, circumvallate cavity is changed into a cystic formation with soft walls, which does not render any characteristic shadows on general roentgenologic examination. It is only on tomographic

examination that one can decide whether or not closure of the cavity has occurred. Thus medical treatment by the family physician has its definite limitations. Chemotherapy as it is practiced today may in many cases favor the establishment of favorable conditions for recovery, but a sterilization of foci does not result even if the employed drug proves bactericidal *in vitro*. An anatomic cure of tuberculosis, therefore, cannot result from chemotherapy alone. Collapse therapy, which may frequently be combined with chemotherapy in order to be successful, also creates only better conditions for a cure of tuberculosis. The final course of the tuberculosis depends on the defense powers of the organism, and open air treatment at a sanatorium, therefore, remains the basic method, which should not be neglected in favor of active purely medical or surgical treatment.

Semaine des Hôpitaux de Paris

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Common Bile Duct in Pancreatitis J. Caroll and J. Nora—p 575

Time of Appearance of Sulfobromophthalein in the Bile New Test for Diagnosis of Incomplete Icterus Due to Retention and Anicteric Blocking of Main Duct J. Caroll and Y. Tanasoglu—p 591

*Diabetes Mellitus Cured by Laennec's Cirrhosis J. Caroll J. Etévé and J. Bertrand—p 607

Diabetes Mellitus Cured by Laennec's Cirrhosis.—According to Caroll and co-workers, the primary role of the diseased liver in the pathogenesis of diabetes mellitus in man has not yet been clinically demonstrated. The occurrence of cirrhosis of the liver associated with ascites is reported in three men, aged 72, 65, and 62, respectively, with diabetes mellitus of more than 10 years' duration. Two of the patients were alcoholics and that suggested the alcoholic origin of the cirrhosis, while the cirrhosis in the third patient was probably secondary to virus hepatitis. Pronounced hyperglycemia as well as glycosuria in the first two patients and hyperglycemia in the absence of glycosuria in the third patient were considerably improved in the course of the cirrhosis. Hyperglycemia did not recur in these patients despite considerable improvement in the ascites as a result of fractional and repeated tapping and a diet containing large amounts of carbohydrates. These observations as well as others collected from the literature suggest that the improvement of diabetes mellitus in the course of an atrophic cirrhosis, mostly due to an inadequate diet in heavy drinkers, is not due to incidental dietetic restrictions in carbohydrates, since it persists despite a high caloric diet rich in carbohydrates. The antidiabetic effect of destruction or removal of liver tissue is further shown by the fact that (1) removal of the liver in animals at the time of pancreatectomy prevents completely the hyperglycemia that would normally occur after pancreatectomy, and (2) removal of the liver subsequent to pancreatectomy causes a sharp drop in the elevated blood sugar. Hyperglycemia and glycosuria can be artificially produced by cortisone, but thus cortisone diabetes does not develop after hepatectomy. The first of the authors' three patients remained in good condition for two years in response to repeated fractional tapping, but within 14 days after the last tapping a pneumococcus peritonitis caused his death. Necropsy revealed that the improvement in the patient's diabetes mellitus was not due to a pronounced decrease in the amount of functional parenchyma, since the lobular parenchyma was fairly well preserved despite annular cirrhosis. Pronounced hyperplasia of the islands of Langerhans involving mainly the beta cells and the observation of a small chromophobe adenoma of the pituitary strongly suggested that the improvement of the diabetes mellitus was related to secondary changes in the endocrine glands and particularly to the hyperplasia of the Langerhans' islands.

Tubercle, London

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Effect of Certain Infectious Diseases on Tuberculin Allergy J. W. Bentzon—p 34

Place of Chemotherapy in Planned Treatment Regimes for Pulmonary Tuberculosis (Review of 395 Patients) G. F. Edwards—p 42

Sleep and Tuberculosis B. Benjamin and F. A. Nash—p 50

Rehabilitation of the Tuberculous Analysis of Results at Remploy Factory 1949-1952 R. Hardy—p 54

BOOK REVIEWS

Diseases of Metabolism Detailed Methods of Diagnosis and Treatment. Edited by Garfield G. Duncan, M.D., Director of Medical Division, Pennsylvania Hospital, Philadelphia. With contributions by Walter Bauer et al. Third edition. Cloth. \$15. Pp. 1179, with illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5, 7 Grape St., Shaftesbury Ave., London W.C.2. 1952.

This is a critical appraisal of present knowledge of metabolic processes. The general policy of dealing first with normal and pathological physiology and then with clinical aspects has been maintained in this third edition. The chapters on carbohydrate metabolism, water balance in health and disease, malnutrition, disorders of the thyroid gland, and diabetes in children have been rewritten. The chapter on diabetes has been revised considerably, and much has been added to the chapter on vitamins and avitaminosis. A chapter on porphyrin metabolism has been added. Several chapters, such as the introductory chapter and that on obesity, have been condensed without any apparent loss of value.

The frequent mention of corticotropin (ACTH) and cortisone in the various chapters is evidence of the wide use of these agents. The development of radioactive iodine as a therapeutic and diagnostic agent in evaluating disorders of the thyroid gland has been considered in detail. The importance of the isotope technique in furthering understanding of physiological processes is emphasized. Particular attention has been given to the uses of the various types of insulin, especially the relatively new, modified protamine zinc insulin, in the therapy of diabetes. The use of folic acid and vitamin B₁₂ in the problems of primary anemia and the value of vitamin B₁₂ in correcting diabetic neuropathies are emphasized. The author allows overlapping of subject material in the chapters on water balance, mineral metabolism, and kidney diseases. Considering the nature of the three subjects, this duplication seems to be wise.

The author and his collaborators have attempted to bridge the gap between the investigator and the practicing physician, and the clinical aspects have been dealt with in fairly comprehensive detail. A discussion of the present status of trace minerals in relation to diseases of metabolism would have been of interest, inasmuch as the general practitioner is flooded with literature by the pharmaceutical houses and others who are incorporating trace minerals in vitamin and mineral supplements. The book should be of interest and of value to any student, investigator, or physician interested in diseases of metabolism.

Unipolar Lead Electrocardiography and Vectorcardiography, Including the Standard Leads, the aV and V Leads, the Cardiac Arrhythmias and the Principles of Vectorcardiography. By Emanuel Goldberger, M.D., F.A.C.P., Associate Attending Physician, Montefiore Hospital, New York. Third edition. Cloth. \$10. Pp. 601, with 312 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6. 1953.

The third edition of this widely read textbook is now about three times its original size owing to revisions and additions in the text, and new diagrams and illustrations. An entire section on vectorcardiography has been added, dealing with various methods of obtaining a vectorcardiogram, or deriving it from a routine electrocardiographic tracing. The author includes for the first time his own views on the theoretical aspects of vectorcardiography and describes normal and abnormal vectorcardiographic patterns in correlation with the principles of unipolar electrocardiography introduced in previous editions of the book.

In the sections on clinical aspects of electrocardiography, ventricular strain now fills a complete chapter. A distinction is made between patterns of ventricular strain and those indicating ventricular hypertrophy, and a pattern of acute right heart strain is distinguished from that of acute cor pulmonale. Various clinical conditions associated with electrolyte imbalance,

especially hypopotassemia, are described at great length, and the respective electrocardiographic alterations are illustrated. Their importance appears overemphasized when compared with the small amount of attention given to other electrocardiographic abnormalities, such as atypical patterns in myocardial infarction, encountered more often in practice. Considering the additions to the discussion of contour changes, and the many pages and illustrations devoted to detailed description of intricate electrical positions, the section on cardiac arrhythmias is too brief. The author has accepted without hesitation Prinzmetal's views on the mechanisms of auricular arrhythmias. Aberrant ventricular conduction is hardly mentioned in the description of premature beats and in the differential diagnosis of ventricular tachycardia, and the concept of sinoauricular block is completely omitted. The statement that quinidine usually slows the ventricular rate in auricular flutter and the reason given for this contradict all previous experimental and clinical observations.

While the typography of the book is excellent, the technical quality of the numerous illustrations is often poor, especially in some of the new additions. The bibliography is not up-to-date. The book is far too complex for the beginner in electrocardiography and the general practitioner, and is a disappointment for the cardiologist interested in clinical electrocardiography.

Clinical Electrocardiography in Children. By Gertrude H. B. Nicolson, M.D., Associate in Cardiology, Chief of Children's Cardiac Clinic and Assistant Visiting Physician to Children's Service at St. Luke's Hospital, New York. Cloth. \$3.25. Pp. 118, with 59 illustrations. The Macmillan Company, 60 Fifth Ave., New York 11. 1953.

The author has not been successful in her stated endeavor "to answer the growing need for a concise and comprehensive work on the subject of the electrocardiogram in the child in health and disease." This is partly because observation of five hundred children is certainly not sufficient basis for such a study. In addition, this material is worked out in a rather superficial way. An extensive discussion and illustration of the changing electrocardiographic pattern in early childhood and in the normal adolescent would be more appropriate than a description of single waves in single leads and of the various electrical positions. Similarly, incomplete and frequently erroneous diagnostic criteria for abnormalities relatively rare in childhood, like myocardial infarction, bundle branch block, and some disturbances of rhythm, are beyond the scope of the book and are dealt with in any text on electrocardiography. The best part of the book is the chapter on congenital heart disease. Unfortunately, here, as in other chapters dealing with abnormalities of the child's electrocardiogram, the poor technical quality of the material, obvious misinterpretations and loose terminology in the legends and text, as well as five different tables of normal rates and P-R intervals, contribute to the reader's confusion.

The Microbiological Assay of the Vitamin B-Complex and Amino Acids. By E. C. Barton-Wright, D.Sc., F.R.I.C. Cloth. \$4. Pp. 179, with 25 illustrations. Pitman Publishing Corporation, 2-6 W. 45th St., New York 36. Sir Isaac Pitman & Sons Ltd., Pitman House, 39-41 Parker St., Kingsway, London W.C.2. 1952.

This text is English writing at its best. It is clear, simple, thorough, well organized, adequately illustrated, and fully indexed. The work will be doubly welcome to the beginner, because it collects the widely scattered literature, and because it gives detailed directions for each step in each assay. In covering the analyses of 10 B vitamins and 18 amino acids, the author purposely omits vitamin B₁₂, since no published method is considered fully reliable and in most of these only very small volumes of solution of amino acids are used, these techniques are unsuitable for the beginner. Although the book is an introductory text, most workers in the field should read it, particularly the general sections.

TO THE EDITOR—A young mother has consulted me about terminating her present third pregnancy. Both previous pregnancies resulted in mentally defective children, the condition in each being diagnosed as probable cerebellar ataxia with mixed dominance. Birth trauma as a causative factor seems unlikely. The physician who attended the woman claims that both deliveries were normal in all respects. In the background of neither mate is there a known similar case. The couple has decided to have the pregnancy interrupted. I am inclined to agree. If this is due to a genetic abnormality, future pregnancies will carry a similar risk. I feel that one parent should be sterilized. What is your opinion?

Domonic Pellillo, M.D. Tucson, Ariz.

ANSWER.—The actual causes of congenital mental deficiencies are not known, with few exceptions, such as rubella during the first three months of gestation, erythroblastosis, and radiation treatment during early pregnancy. D. P. Murphy (Congenital Malformations: A Study of Parental Characteristics with Special Reference to the Reproductive Process, ed. 2, Philadelphia, J. B. Lippincott Company, 1947) has shown that recurrence of monstrous children is common. In general, the parents of a congenitally malformed child are about 25 times more likely to produce another defective child than are parents whose children are all normally developed. Furthermore, if two children in a family exhibit congenital defects, there is a 50% chance that the same defect will reappear in a subsequently born brother or sister. In view of the fact that there is at least a 50% chance that a third child will be abnormal, interruption of pregnancy may be justifiable, however, consultation with another physician must be had before the uterus is emptied. Likewise, the question of sterilization in such a case may be considered. Certainly if this pregnancy is permitted to continue and a third defective child is born, sterilization should be carried out on either the husband or the wife. It is far simpler to sterilize the male than the female. Whether this should be done now is debatable, but perhaps it is justifiable. It must be remembered that statistically the baby in utero has almost a 50% chance of being normal.

TO THE EDITOR—Please advise me concerning pregnancy in a postpoliomyelitic patient with reference to management of the antenatal course and choice of anesthetic for delivery. There is paralysis of both lower extremities but the patient is ambulant on braces. The circulatory pattern in the legs is poor. There is continence of the urine and feces. The patient's general condition is excellent.

Gene S. Pierce, M.D., New Albany, Ind.

ANSWER.—There are many recorded cases of normal labor occurring in women with complete or partial transection of the spinal cord. In general, it may be said that spinal cord lesions do not interfere with the normal activity of the uterus in labor nor do they affect its normal growth in pregnancy. Therefore, in a patient who is postpoliomyelitic, irrespective of the extent of disability, there should be no difficulty from this source either in the course of pregnancy or in the pattern of labor. Prenatal care should consist only of the ordinary routine precautions, with particular attention to adequate rest and nutrition and avoidance of excessive weight gain. If physio-

therapy is being employed, measures permissible during pregnancy include hydrotherapy and active and passive exercises. Massage should be avoided. Labor may be conducted along entirely orthodox lines. Spinal anesthesia is interdicted in a patient who has had any central nervous system lesion or back injury and, therefore, should not be used in this patient. The same is true of caudal anesthesia. Inhalation or local anesthesia is entirely permissible.

TO THE EDITOR—It is customary in some urological departments to test sensitivity to intravenous contrast materials by placing a drop of the solution in the conjunctival sac. In the event the patient is highly sensitive, can the resulting reaction cause ocular damage? If so, what is the antidote or treatment?

M.D., New York

ANSWER.—Although patients do not often show an alarming degree of iodine sensitivity during excretory urography, the possibility of such reaction must be considered. A history of allergy should make a preliminary test imperative. Tests for sensitivity to iodine may be either oral, cutaneous, or conjunctival. The latter test, because of its simplicity, has been used more frequently. Care should be taken that the iodine solution is administered with aseptic precautions. In case there is a severe conjunctival reaction, it can usually be controlled by instilling a few drops of a 0.5% solution of cortisone. As a precautionary measure, a small amount of the contrast medium may be slowly injected intravenously and, after pausing for a few minutes, the injection may be completed. It has been claimed that a preliminary dose of acetylsalicylic acid may have prophylactic value.

TO THE EDITOR—I would appreciate your opinion regarding medical treatment of acute glaucoma in a 60-year-old debilitated woman, who has had diabetes for 20 years. The eye is blind with the pupil in mid-dilatation, and rubeosis iridis and retinopathy are present.

M.D., New York

ANSWER.—The secondary glaucoma caused by rubeosis iridis constitutes the most difficult problem in the management of glaucomas. There is no medical treatment of value, the pain caused by the condition commonly leads to enucleation, which is the procedure preferred. Palliative surgical therapy, such as cycloclathery, may be useful in controlling pain and perhaps intraocular pressure but will not restore vision. The retrobulbar injection of alcohol may also be of some value in relieving pain. If the eye is not painful, no treatment is indicated.

TO THE EDITOR—For two years I have had as a patient a 32-year-old white man with progressive muscular dystrophy. He has been given therapeutic doses of vitamin B complex and vitamin C and, also, up to 40 mg of vitamin E daily, with fair results. Is there any more promising therapy?

Joseph G. Varkol, M.D., Clifton, N. J.

ANSWER.—Progressive muscular dystrophy is a disease usually beginning early in life. It occurs more frequently in males, the ratio being about 5 to 1. The disease rarely begins after 20 years of age. Often, several members of a family are affected. Progress is gradual, and the patient is usually finally bedridden. Prognosis is poor if the respiratory muscles become involved. Treatment consists of palliative measures. Favorable results to some degree have been reported with the use of vitamins, especially vitamin E, but their value is not established. There is marked loss of muscle power and tone in this

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

disease, however, mild massage with passive resistive exercises is helpful in most cases. Inactivity and muscle disuse should be discouraged, but muscular exertion should be avoided. Back braces are of value in patients in whom scoliosis and lordosis are becoming marked. Other orthopedic appliances are useful at times. Recently, adenosine-5 monophosphate has been used, with reported success. Theoretically, this drug stimulates muscle regeneration, and it is worthy of a thorough trial in progressive muscular dystrophy. The suggested dose is 25 mg in a gelatin base given intramuscularly daily for five days and thereafter about three times a week. Later, frequency of administration may be reduced to once or twice a week.

OCULOMOTOR PARALYSIS IN A DIABETIC

TO THE EDITOR—A 55-year-old man, a diabetic for many years, had an accident in which the scalp was lacerated and he momentarily "blacked out." A few days later double vision, drooping of the eyelid, and paralysis of the internal rectus developed. Is it possible that the blow to the head produced a lesion around the nucleus of the third nerve that became evident a few days later? Would it be proper to utilize vitamin B₁₂ on the assumption that the patient has diabetic neuritis? Max J. Schroeder, M.D., New York

ANSWER—It is impossible from the limited information given to answer this question with any degree of certainty, however, it is unlikely that a patient who sustained a blow to the head causing a laceration of the scalp and only a momentary "black-out" would, as a result, sustain a sufficiently severe injury to cause partial paralysis of the third cranial nerve a few days later with no other symptoms. Admittedly, a minor blow to the head could produce a subdural hematoma, which might result in a third nerve palsy, but if this occurred, there would certainly be other symptoms that are not listed. On the other hand, it is well known that diabetics, especially those with arteriosclerosis, often have involvement of one of the nerves to the extraocular muscles, either the third, fourth, or sixth cranial nerves. It would seem more likely that this patient had involvement of the third cranial nerve on that basis rather than as a result of this relatively minor injury. There would be no objection to the administration of vitamin B₁₂ in this case but no assurance that this or any other form of therapy would prove beneficial. Involvement of the ocular motor nerves as the result of diabetes and arteriosclerosis is often temporary, and the condition frequently improves spontaneously.

CAST OF THE COLON

TO THE EDITOR—A 38-year-old, apparently healthy woman had abdominal discomfort and then evacuated what appeared to be a solid cast of the inner outline of the colon. A competent pathologist analyzed the cast carefully and concluded that it was composed of necrotic tissue. Are there references in the literature to similar instances?

Max J. Schroeder, M.D., New York

ANSWER—Granting that the material passed had its source in colonic tissue, the case is unusual, owing to the mildness of the symptoms and apparent good health of the patient. Under the circumstances, one would expect the material to be the familiar mucus cast seen in patients with mucous colitis. A coating of decomposed meat tissue and other food materials on such casts could give the appearance of necrotic tissue. The medical literature of recent years cites no case report of similar nature. Volume 7 (1886) of the Index Catalogue of the Library of the Surgeon General's office, United States Army, contains numerous references to articles on intestinal concretions and casts, but the cases reported, mostly of foreign origin, apparently are not identical to the one under consideration. Later articles dealing with membranous enteritis, enterocolitis and colitis, pseudomembranous enteritis, and necrotic and ulcerous enteritis and jejunitis, all conditions in which shreds of membrane may be passed in the stool, are invariably characterized by a stormy clinical course, sometimes with fatal

termination. In Gould's and Pyles' text, *Anomalies and Curiosities of Medicine* (New York, Sydenham, Publishers, 1901, p. 643), a case is described in which a slough of the intestine followed intussusception.

VINCENT'S INFECTION

TO THE EDITOR—What is the simplest or most efficient office procedure for staining a smear for diagnosis of Vincent's infection?

Harry L. Parker, M.D., Lockport, N. Y.

ANSWER—The simplest procedure is staining with methylrosaniline chloride (gentian violet), however, the stained smear alone is no longer considered diagnostic, since Vincent's spirochetes (*Borrelia vincenti*) and the fusiform organisms are normal inhabitants of the mouth. Pain, foul odor, and sloughing of the gingival tissues are characteristic signs of so-called Vincent's infection.

RAZORS AND HOMOLOGOUS SERUM HEPATITIS

TO THE EDITOR—My attention has been called to the query that appeared in THE JOURNAL Jan. 10, 1953, page 166, concerning "Razors and Homologous Serum Hepatitis." While it is true that the virus of serum hepatitis can be inactivated by ultraviolet light, recent work conducted by this laboratory, which is shortly to be published, has demonstrated that the levels of ultraviolet energy required to accomplish this are much higher than had previously been believed necessary. General statements that the virus of serum hepatitis can be inactivated by ultraviolet irradiation should therefore be made with caution and reservation. There is no evidence that the usual germicidal solutions can be relied on; in fact, what little evidence there is indicates that cresol, phenol, ether, and thimerosal (Merthiolate) are ineffective. The statement "Water sterilization at 60 to 80 C for one or two hours will kill the virus" is not in keeping with our experience with the effect of heat on the agent. As reported in a paper read before the American Public Health Association in Cleveland, Oct. 23, 1952 (abstracted, Pub. Health Rep. 68:131, 1953), heating plasma containing the virus of serum hepatitis for 4 hours at 60 C was found ineffective. The "Minimum Requirements for Citrated Whole Blood" issued by the National Institutes of Health (ed. 3, Feb. 19, 1953) stipulates that apparatus and instruments capable of transmitting serum hepatitis from one person to another be heat-sterilized and contains the following statement: "Heat sterilization shall be by autoclaving for 30 minutes at 121.5° C (15 lb. pressure), by dry heat for 2 hours at 170° C, or by boiling in water for 30 minutes." This is severe treatment for sharp cutting instruments, such as razors, but to recommend anything less stringent would be unwise.

Roderick Murray, M.D.
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NECROSIS OF THE FEMORAL HEAD

TO THE EDITOR—In THE JOURNAL, March 7, 1953, page 874, I note a query about the best method for treating necrosis of the femoral head following a fracture of the hip. The answer is categorical with respect to the use of the prosthetic heads. An accumulating experience in the use of these does not seem to justify the hopes that were originally held out for them. More and more cases of failure are being seen not only in arthritic patients but also in postfracture patients. After such failures, I have used the resection angulation operation as a two stage procedure (Surgery 13:55, 1943) and, since 1945, as a one stage procedure (Bull. Hosp. Joint Dis. 9:187, 1948). The results of a follow up study of about 50 of these patients indicate a higher percentage of satisfactory results than are obtained with the other methods (New York State J. Med., 53:1201, 1953).

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MEDICINE TODAY—ITS AIMS AND RESPONSIBILITIES

Edgar V. Allen, M.D., Rochester, Minn.

When I began preparation of this paper I had only general ideas, for I was requested to present a non-scientific essay. I know now that generalities tend to remain amorphous and that to cause them to crystallize in lucid exposition may require a great deal of additional thought. Also, I have some perturbation about the result I have achieved. I know that in this audience are persons whose qualifications for the sort of address I was asked to make equal or exceed mine. Moreover, as I read what I had written when it was too late to make changes, I wondered if some of my words would be interpreted in Milwaukee as accusation. I assure you that is not my intention. In Milwaukee, I am fully aware, my voice is not crying in a wilderness. But there are remnants of wilderness in the land, and where but in a place of enlightenment such as this would it be more likely to be useful to urge the true disciples of medicine to missionary zeal?

MY CREDO

I believe in the profession of medicine. I am thankful for that improbable chance that, in an earlier day, took me out of a school of engineering into premedical study. I would rather be of the physician's guild than a follower of any other occupation of which I know. I believe that no profession offers better opportunity for growth in moral and ethical stature, for contribution to the welfare of society, and for relief of individual human suffering. I believe that no profession permits the practitioner to approach so closely the goals of kindness, loyalty, devotion, and consecration as does medicine. If I find, as you must, flaws in the wide surface of the portrait that represents us, I believe them to constitute only a challenge to us to strive more diligently toward perfection.

ACCOMPLISHMENTS OF MEDICINE

Much of what has been accomplished in the past 30 years, the "Golden Age of Medicine," has been the outgrowth of mental and emotional attitudes of practitioners and scientists toward their chosen work. If, in amplification of what has been said, a few of you note that fragments have been taken from something I said elsewhere,

perhaps you will have the goodness to consider them pertinent to the present occasion. Mark Akenside, a physician, thought of science as the "pure delight." A portion of his work, "The Pleasures of Imagination," published in 1744, reads as follows:

Speak, ye, the pure delight, whose favored steps
The lamp of science thro' the jealous maze
Of nature guides, when haply you reveal
Her secret honors

To scientists dedicated to the "pure delight," and to practitioners who have interpreted the results of laboratory investigation for the benefit of the sick, all are indebted for this Golden Age. The investigator and the practitioner occupy the bright foreground of a dark canvas. They are, in my estimation, the most favored of all in the scope of human endeavor. I do not wish to detract from the tribute paid the Royal Air Force by Winston Churchill, when he said, "Never in the field of human conflict was so much owed by so many to so few." In the long view of history, however, this fine Churchillian phrase, in my estimation, can be applied even more aptly to all whose primary aim has been relief of human illness. If in passing I note that we, the practitioners of medicine, take undue credit for what has been done, forgetting that we have done little more than apply what others have discovered, I need only recall the omnipresence of human frailty.

I shall not document in detail the accomplishments of medical science and medical practice that have made this the Golden Age. Anyone can identify them by reading the edition of Osler's textbook published in 1918 and noting the contrast between medical skill and knowledge then and now. Suffice it to say here that the time from cradle to grave has increased from fifty years in 1900 to almost three score and ten in 1952. The percentage of the population older than 65 years has doubled in the same period.

"Man that is born of woman is of a few days and full of trouble," wrote the unknown author of the Book of Job, but man that is born of woman today is of many

From the Division of Medicine, Mayo Clinic.
Read before the Milwaukee Academy of Medicine, Milwaukee, Jan. 20, 1953, and before the Ogden Surgical Society, Ogden, Utah, May 21, 1953, under the title "Apples Don't Fall Far from the Tree."

days That he is full of trouble is the endowment of a world of despair, doubt, and angry disillusionment The contribution of physicians to this world is prevailingly to improve it, however, the harsh facts are that a substantial portion of the population is dissatisfied with the kind of medical care it is getting and with the cost of it Consequently, not impulsive opposition but soul-searching tolerance and leadership will be required of medicine if it wishes to guard the public health against those who are willing to trade the much that has been accomplished in matters of health for an uncertain pig in a socialistic poke

DEFICIENCIES WITHIN THE PROFESSION

Earlier in this presentation I accounted for any carping of mine, and now, in further defense of what I am about to say, please recall the epigram attributed to Abraham Lincoln "To accept by silence, when they should protest, makes cowards of men" I need not furnish to this audience evidence that occasionally treatment is for fee rather than for patient welfare If great literature portrays life, probably hundreds of examples of destruction of character by cupidity or uncontrolled ambition can be cited One that seems appropriate to quote at this time, because of the stir the work currently is making, is found in Coghill's translation of "The Canterbury Tales" In "The Pardoner's Tale," three young roisterers are represented as looking for Death They seize an old man and mockingly demand that he tell them where Death can be found He assures them that he has seen Death that very day, down the road, under an oak tree With drunken bravado, they march to the tree and find, to their amazed delight, a pile of gold florins But the old man was right, too Since the three decided they cannot haul their treasure home in daylight, they send the youngest back to town for bread and wine to sustain them until night No sooner is he gone than one of the other two proposes treachery

Now look, when he comes back, get up in fun
And have a wrestle with him, just a rag,
Then I'll jump up and slice him through the bag
While he is struggling, thinking it a game,
You draw your dagger too and do the same
Then all this money will be ours to spend

But the youngest, on his way to town, had similar thoughts and poisoned two of the three bottles of wine he bought Chaucer continued

Why make a sermon of it? Why waste breath?
Exactly in the way they'd planned his death
They fell on him and slew him, two to one
Then said the first of them when this was done,
Now for a drink Sit down and let's be merry
For later on there'll be the corpse to bury"
And, so it happened, reaching for a sup
He took a bottle full of poison up
And drank, and his companion, nothing loth,
Drank from it also, and they perished both

Of course, I do not mean to suggest that a physician in his right mind will commit murder for gain The urge to acquire may adversely affect one's work, however, and if we would combat deterioration of that nature, we must begin with acceptance of the fact that, sometimes, medical practice is dishonest, incapable, unethical, and too costly The time has passed when we can condone needless operations and prolonged treatment for ills

that do not exist because the physician does not know any better One so ignorant when all about him is the opportunity to learn and one who refuses to call for consultation when it is within reach is not qualified to practice medicine Such conditions could not exist if were it not for our reluctance to discipline those within our own profession Basking in the sunshine of prosperity, we are, to this extent, untrue to the ethics of medicine through negligence We must, in fact, be our brother's keeper

The law, justifiably trustful of the standards of our guild, is lenient Hence, our diplomas and our certificates of licensure to practice permit us a large measure of self-government, only in cases of gross negligence and overt malpractice does the law step in I do not recommend periodic evaluation of individual competence either by ourselves or by the state, but I do insist that we maintain our standards Those who deviate from practices that are vital to our profession must turn from their waywardness or get out of medicine

MEDICAL PRACTICE AND SOCIETY

It is no news to you that medical practice, as contrasted with medical science, has been and is under vigorous attack by many of our fellow citizens This is not without benefit to us, a kite rises only against the wind Are all who oppose us politically ambitious, personally selfish, or desirous of power? We would be devoid of vision and thoughtful consideration if we believed it It is true that there are persons who have pilloried medical practice as a game, without realizing that they are playing in a game of destiny, and who thus have caused the wise to stammer and the timid to retreat Some believe that accusations are equivalent to facts and confuse suspicion with certainty In addition, however, there are within and without the profession those who are determined to act for the common welfare

As a member of the House of Delegates of the American Medical Association for many years, I have noted improvements that have been effected in medical practice Now, we are something like the Australian who bought a new boomerang He was brought to the point of complete frustration in trying to throw the old one away Few have, by individual acts, done more harm to the cause of medicine than those who have said, "I don't make house calls," or "I don't make night calls," and have hung up the telephone Fortunately, that behavior is largely of the past Yet I wonder if your county medical society is in a position to challenge those who complain—as did the Alameda County Medical Society, by means of a full page announcement in an Oakland paper—to identify anyone who cannot get medical care at any time What the Alameda County Medical Society strove for and attained is not a nebulous goal but a tangible one, desirable and essential

The formation of mediation committees, established for the public welfare and honestly dedicated to protection of the rights of the individual in his relations with his physician as well as the rights of the physician, is a step in advance For such committees to serve ideally, we of the medical profession must abandon forever a heretofore cherished but erroneous idea that we must, under all circumstances, protect our professional col-

league whether he is right or wrong. There are hundreds of communities without mediation committees and thousands of patients who do not know that such committees exist. Correction of these deficiencies is essential. Yet, even after prodigious effort, progress may seem illusory. You remember when Alice, after running to the limit of her endurance with the Red Queen, found that they still were in the same place by the same tree. Alice remarked that in her country they would have expected to get somewhere by all that running. "A slow sort of country," said the Queen. "Now here, you see it takes all the running you can do to keep in the same place. If you want to get somewhere else you must run twice as fast."

We shall have to do that in our dealings with the society of which we are a part. Accordingly, at this point, may we not consider one additional aspect of those dealings, the aspect commonly designated by the term "public relations?" Only the simplest arithmetic is required to estimate the effect on public relations if more than 150,000 physicians were so deeply imbued with the idealistic principles that underlie the practice of medicine that they invariably, persistently, and intuitively applied those principles in care of the sick. Even more is necessary—coordinated programs of public education concerning our glorious past and also the changing present and the bright future of medicine. These cannot but result in improved rapport with the public, from whom we draw our inspiration and our strength. Some of you detest the word "politics" but to be politic is only to be sagacious in promoting a policy. Good public relations depend on something more sincere than noise, the making of which stopped the river steamer of Lincoln's story. It seems that the whistle was big and the boiler was little, when the captain pulled the whistle cord the paddle wheels stopped turning.

MEDICAL EDUCATION

In the field of medical education we have delegated to professional educators almost all of the responsibility of arranging the curriculums. Educators are as honest and sincere as the rest of us, but they are not practicing physicians. Perhaps this is why premedical curriculums entirely and medical curriculums almost entirely have too little reference to the needs of medical practice as felt by practicing physicians. If this seems a harsh judgment of the premedical curriculum, others, who may be better qualified than I, have been even harsher. They have not confined their strictures to the premedical course. I am thinking of the report of a committee of educators composed of members of the faculties of preparatory schools and colleges, who concluded that the first two years of college are "a serious waste of time."

I have heard, too often to permit me to disregard the statements as hearsay, that in premedical curriculums are courses used as "eliminators." These courses screen out from among students who would seek admission to the medical school most of those who do not have extraordinary intellectual gifts as these are expressed in mastery of difficult fields of pure science that may have small relevancy to the work of a physician or to the qualities of mind and heart of which he should be possessed. We

would be on much firmer ground, I am sure, were we to determine the qualities of heart and mind that characterize successful practitioners of medicine and to evaluate the qualities of prospective medical students on this basis. Studies leading to this goal have already been carried out. Utilization of them remains with the future.

I am told, also, that the scholar, trained to read accurately, to think consecutively and with infinite care, to record only that which before has not been recorded or sufficiently interpreted, will find little in a medical atmosphere that he can recognize as scholarship. He will applaud the amazing technical proficiency with which the physician's vocational training endows him but, if he reads in the medical library, he will deplore the plethora of redundant material, the incoherence, the faulty sentence structure, the inexact quotation, and the wretched arithmetic. The fault lies, I believe, not greatly with the physician himself. He cannot know that with which he has never been made acquainted. The fault can be identified, I believe, as one of the blind spots in the eyes of those who direct education, including premedical education—the failure thoroughly to ground young students in grammar, rhetoric, and composition, the essentials to competence in written or spoken exposition. There grows from this deficiency an unhappy situation. A major part of the contact a physician can effect with his patients, his public, and his professional colleagues is by means of what he writes and says, yet he was not taught, when he was preparing for the study of medicine, to write, speak, or refrain from writing or speaking.

As for medical education itself, since I graduated in medicine I have never been queried by my alma mater about it. Have you? On the other hand, I don't know that I have volunteered my unsolicited opinions to my alma mater. Have you? This is but an example of our lethargy. By silence, we sanction what we cannot wholly approve. Who could know better the essentials of medical education than those who are the recipients of it and who apply what they learned in daily practice? I have talked to many physicians in practice and to many fellows of the Mayo Foundation. They believe, with minor exceptions, that there is much in medical education that is useless, impractical, and anachronistic. The defense usually made by professional educators is that some subjects have for their purpose mental discipline. To this I object. Mental discipline should have been imposed in preparatory school and in the premedical years. What further of this remains to be done in the professional school can be effected better by study of subjects that are useful, practical, and timely.

Just as seems to have been the view of the electorate last Nov. 4, so in medical education I believe we need a change. In the more than a quarter of a century since I graduated from medical school, however, aside from modifications to maintain contemporaneousness, almost the only change has been to bring the student and the patient into contact earlier in the medical course. It seems strange that, although the life blood of medicine is experimentation, in the field of medical education experimentation is sadly unapparent.

Finally, I do not know the answers to my own criticisms of medical education. There are answers.

FINANCIAL COMPENSATION FOR THE INVESTIGATOR

"Iccius, art thou looking now with envious eye at the rich treasures of the Arabians?" Thus Horace deplored his scholar friend's turning from his books to adventure. Possibly, however, Iccius had no choice. Certainly, too often modern medicine binds its servants in science with the fetters of economic slavery, thus adhering to an anachronistic practice. Regardless of whether we like it, success in medicine as in industry is measured in a large part by the ability of the practitioner to earn a good living. The best men seek the best pay. Adequate financial reward is not denied any large part of the great body of practitioners of medicine, those who interpret science for the benefit of the patient, for most of them are independent workers, not on salary. Those engaged in research are, however, treated as public servants are treated. For little reward, they are expected to give much. Too often, the research worker, if he or his wife lacks independent income, must accept a low standard of living and buy his groceries on prestige. It is to the credit of many such workers that they have not been dismayed nor their energies sapped. I believe that advancement in industry would have been greatly retarded had financial rewards for investigators in that field been as inadequate as they are in medicine. Not all investigators will remain in academic bondage and yet continue to give of their best. The "pure delight" of science is not enough.

STATE BOARDS OF MEDICAL LICENSURE

Most of you are aware of the difficulties encountered when a physician desires to move from one state to another. It is clear, I believe, that in most instances the questions raised by the examining board do not pertain entirely to the competence of the physician who desires to establish practice in another state or to his moral and ethical character. He may have competence and moral and ethical standards of the highest order, yet be refused licensure. In some states the candidate is examined relative to his fitness for general practice, although he is a specialist of acknowledged accomplishment and never intends to conduct a general practice. In other instances there is a difficult examination in basic sciences that bears only a tenuous relationship to the past or future performance of the candidate. In such instances the candidate must stuff his mind full of knowledge useless to him except for the temporary purpose of passing the examination, or he must fail. I believe it is true that almost any head of a department in an excellent medical school of any state could not pass examinations to practice in other states without a great deal of cramming. Even after the cramming he might fail. Under modern conditions, when class A medical schools graduate a fairly uniform product, this does not make sense. It seems that the state boards might work out some requirement for licensure that would put less emphasis on a few hours of examination and more on a candidate's formal education and training, his knowledge of the basic sciences, and his record as an adequate and ethical practitioner of good moral character.

There is a fairly widespread impression that some licensing boards erect barriers against competent physicians to exclude competition. If this is true of the board

of medical licensure of any state, and that it is true in some cases seems likely, that board is not meeting the obligations the people of the state placed on it when they granted to it legal authority to give or withhold licensure from physicians who would practice among them. Is there any justification, in a free society, for depriving the public of the opportunity to choose among competent physicians? If this is being done, it would be well for those responsible to examine their own motives.

COST OF MEDICAL CARE

Nowadays there is much talk about the cost of medical care. It has been responsible, according to the newspapers, for larceny and, according to rumor, for impoverishment. It is commonly considered to be a major cause of inadequate medical care. If there are among us those who refuse to furnish medical care because of a patient's inability to pay, they should receive the attention of the intraprofessional mediation committees I mentioned earlier. The responsibility for medical care is, however, reciprocal, the patient should strive to pay his physician. Those who would change medical practice to conform to socialistic ideas, and incidentally, would destroy individual initiative, attempt to persuade him that it is the responsibility of government to care for him when he is ill, and tell him that medical services can be furnished "free." These propagandists prey on the patient's fear in the guise of contributing to public welfare. They bemoan the millions of consumer dollars expended annually for medical care but neglect to indicate that the annual consumer expenditure for medical care is only 4% of the total annual consumer expenditure. They characterize the Taft-Hartley bill as a slave labor law yet fail to note that socialization of medicine means "slave labor" for the physician. Few slaves are able to maintain the quality of their work. The planners emphasize that 1,200,000 families in the United States owe doctors more than \$200 per family and that 200,000 families owe doctors more than \$1,000 per family. Yet the planners disregard the observation that so many families can be so deeply indebted to physicians only because physicians continue to furnish services to persons who have not sustained their credit.

It is not enough that physicians take care of many who are indigent, without fee, a procedure almost unknown in other fields of human endeavor, or that they scale their fees downward better to fit the purses of those who are ill. It is not enough to point out that, in contrast, merchants demand pay for goods purchased without regard to the pocketbook of him who buys. It is not enough to indicate that great discoveries in medicine are the property of all the world without patent and without profit, in most instances, to the discoverer. It is not enough to indicate that the cost of medical care has failed to keep abreast of the increased cost of groceries. It is not enough to urge the people to save for illness as they save for a radio, a refrigerator, or a new automobile. It is not enough to repeat that medicine spells the words "kindness," "loyalty," "devotion," and "consecration" not with its lips but with its heart.

It is enough to furnish excellent medical care for a reasonable fee and to provide prepayment insurance plans to lessen the financial burden of illness. It is dis-

ingenuous to expect physicians to assume the added responsibility of forcing society in general to provide through saving or insurance for the costs of illness. This is not a matter of force but of education of the public, and in this program physicians must continue to play a leading part. It is unfair to ask physicians to shoulder the costs of medical care of the indigent, yet, for the most part physicians have done this without complaint. This, it seems to me, is a matter for welfare agencies, such as the Community Chest, which should provide prepayment insurance for those who cannot buy it themselves.

It is not my intention to discuss in detail prepayment plans, such as Blue Cross and Blue Shield, although in preparation for this presentation I studied them in considerable detail. In general, the better plans have the virtues of protecting each family of low income against most of the costs of professional and hospital care. They do this at a daily cost about equivalent to the price of a gallon of gasoline or a package of cigarettes and a small beer. These plans, conceived in wisdom and supported with enthusiasm in most medical circles, have many virtues, yet they are not without flaws. Speaking once more in generalities, for there is much variation in the provisions of the policies, I find them deficient in the following respects: they do not provide for the cost of care in the home or the office, they do not compensate the insured adequately for hospital charges, and they do not provide for medical care in the hospital. As an internist, I have often wondered whether these plans were sponsored largely by surgeons. Finally, the limitation of benefits excludes provision for the cost of prolonged and disabling illness.

The matter to which I have just referred has been cared for by a "major medical expense policy" issued by one of the large commercial insurance companies. The policy reimburses the insured for hospital costs up to \$15 daily and three-fourths of all other medical costs up to \$5,000. The premium rates seem reasonable. The fact that in 14 months only 8,000 of these policies have been sold may constitute some kind of answer to those who allege that there is a demand for insurance against catastrophic illness.

In my opinion there can be no valid objection, except those I have mentioned, to voluntary, prepayment insurance plans. Except for the indigent, such plans, when improved, will defray most of the costs of illness. Of course, an essential of all medical care is that fees be reasonable. Here again, a few who sacrifice moral and ethical considerations for material gain prejudice the minds of the public against physicians and strike at the reputations of the many within our profession. As I review the bitter attack on medicine by those who would fit it into a socialistic scheme, I cannot escape the conclusion that they aim at more than adequate medical care for society. Nonetheless, they emphasize our errors.

INDIFFERENCE, LETHARGY, AND ENNUI

On several occasions I have mentioned the distressing inaction of which many of us are guilty. It is always deterrent, it may be catastrophic. I wish now to give two examples.

The special assessment of the American Medical Association was greeted with criticism by many, yet I can

honestly observe today that without it we might well be far along the road to administration of medical services by the federal government. Many have accused the American Medical Association of being a political body, yet activity in the field of politics is essential to social progress. Earlier I said that to be politic is only to be sagacious in promoting a policy. Some of you jeer at the American Medical Association and are intolerant of its policies. But could any critic possibly conceive of any aims of the American Medical Association that are not in the general direction of maintenance and improvement of the social welfare of physicians and their patients? Surely none could believe that policies of the American Medical Association have any contrary purpose. It is unbecoming to anyone to benefit from the activities of others of his kind and yet to refrain from contributing to their efforts. You may be acquainted with the habits of the cowbird, which lays its eggs in the nests of smaller species of birds. The hatched interloper grows rapidly, demands the major part of the attention of the foster mother, and eventually pushes its smaller mates out of the nest. When grown, it takes its place in cowbird society. Should we continue to have cowbirds in the medical profession?

It seems clear that most of us do not desire participation of the federal government in medical education. Yet the American Medical Education Foundation has had surprisingly little financial support from most of us. The financial problems of medical schools would be largely solved if each of us would contribute somewhat more than \$100 annually. If we refrain from contributing we shall fail to acknowledge our individual debts to our medical schools, and we shall fail to support a worthy principle.

A PLEA FOR STATESMANSHIP

In closing, I wish to make a plea for statesmanship in medicine, and I can do no better than to quote Walter Lippmann:

The politician stirs up a following, the statesman leads it.

The chief element in the art of statesmanship, under modern conditions, is the ability to elucidate the confused and clamorous interests which converge upon the seat of government. It is an ability to penetrate from the naïve self interest of each group to its permanent and real interest. It is a difficult art which requires great courage, deep sympathy, and a vast amount of information.

Once a man becomes established in the public mind as a person who deals habitually and successfully with real things, he acquires an eminence of a wholly different quality from that of even the most celebrated caterer to the public favor. His hold on the people is enduring because he promises nothing which he cannot achieve, he proposes nothing which turns out to be a fake.

Often, therefore, the great statesman is bound to act boldly in advance of his constituents. This capacity to act upon the hidden realities of a situation in spite of appearances is the essence of statesmanship. It consists in giving the people not what they want, but what they will learn to want. It requires the courage which is possible only in a mind which is detached from the agitations of the moment. It requires the insight which comes only from an objective and discerning knowledge of the facts, and a high and imperturbable disinterestedness.

Statesmanship is a quality of the current medical leadership. It must be supported and improved.

GUIDES TO OPTIMAL THERAPY IN BACTERIAL MENINGITIS

Hattie E Alexander, M D , New York

As a result of extraordinary progress in the development of antibacterial agents, it has been possible for several years to obtain a cure in almost all of the cases of the most frequently occurring varieties of pyogenic meningitis. Sufficient data are now at hand from experience in this field to provide a measure of the actual accomplishments. Clearly the mortality has been greatly reduced, few children die now of meningitis. On the other hand, among the survivors there is an increase in the incidence of persistent cerebral injury of a degree that disturbs function. Such residuals, when they occur, are apparently the result of late diagnosis, both clinical and bacteriological, and of inadequate treatment with the available therapeutic agents.

LIMITATIONS OF THERAPY

The limitations of antibacterial therapy in the past several years are now documented. A number of authors have reported a significant incidence of neurological and psychological sequelae.¹ The frequency of subdural collections of fluid as a complication during recovery from pyogenic meningitis has been reported from a number of institutions. The high incidence of this complication was first reported by McKay and associates²; they pointed out that in the majority of patients the character of the fluid (with very high protein concentration and xanthochromia) and the histological features of the membrane enclosing the fluid are indistinguishable from those in subdural hematomas clearly associated with trauma as well as those of the idiopathic variety. This lesion was interpreted as of great significance in the future mental development of the child because of the constricting action of the membrane. On this premise McKay and associates recommend the drilling of burr holes when an abnormal quantity of fluid is found and removal of a membrane if it is seen.

A high frequency of subdural fluid collections as a complication of meningitis has also been reported from New Orleans by Smith and Prather.³ They explored the subdural space routinely in all patients with meningitis who had open suture lines, subdural collections of fluid were encountered in about 50% of patients in whom exploration was done. A conservative therapeutic policy has been pursued by the New Orleans group. The subdural fluid was removed at intervals, if it ceased to reaccumulate within three to four weeks, nothing more

was done. When the fluid continued to form, burr holes were made and the membrane removed, this was necessary in only 2 of 20 patients. At the Babies Hospital a similarly conservative policy has been pursued with comparable results. Whether the conservative or the aggressive policy is the right one must be determined by a long term follow-up in a large series of patients and will require at least another five year period of study, however, the weight of evidence appears to justify the conservative approach.

Since it is not known whether the presence of subdural collections alters the prognosis for future mental development, the efficiency of any therapeutic program decided on must be judged by the frequency of this complication as well as by other criteria to be discussed. For this purpose routine exploration of the subdural space in patients with open suture lines is essential. Data now available fail to show a significant difference in the incidence of this complication in patients treated with streptomycin and sulfadiazine and in those treated with chloramphenicol and sulfadiazine.

It is apparent that the potential 100% recovery rate in pyogenic meningitis is far from being realized and that this goal can be approached only if optimal therapy is applied. This paper presents guides that are of value in determining the optimal therapeutic regimen. In the process two controversial subjects are discussed: indications for intrathecal therapy and the use of certain combinations of antibiotics. Four principles can serve as guides to optimal therapy.

EARLY APPLICATION OF TREATMENT

The first principle is that, for therapy to be optimal, it must be applied early in the course of the disease. Optimal therapy requires recognition of clinical signs of early meningitis. In patients over 6 to 7 months of age, the signs of early meningeal irritation are easily detectable if they are looked for before any treatment is applied. They may be masked by therapy, however, even by therapeutic measures that ultimately prove to be inadequate. In infants less than 6 months of age, the recognition of signs of early meningeal irritation is much more difficult, abnormal findings must lead to examination of the spinal fluid. When the fontanelle is open and is examined before the baby becomes dehydrated, increased intracranial pressure can be detected as the earliest sign. If this index cannot be used, other less definitive signs can arouse suspicion of early meningitis and lead to examination of spinal fluid, these signs are alternating drowsiness and irritability, a high-pitched cry, a vacant stare, and even unexplained fever. By the use of these signs early diagnosis of meningitis can also be made in this age group, under these circumstances, the prognosis is just as good as in the older age group.

Rapid bacteriological diagnosis is essential for optimal therapy. In the majority of patients, especially in those who are the victims of severe infections and therefore have the greatest need for early optimal treatment, it is

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¹ Crook, W. G., Clanton, B. R., and Hodes, H. L. Hemophilus Influenzae Meningitis: Observations on Treatment of 110 Cases. *Pediatrics* 49: 643, 1949.

² McKay, R. J., Jr., Morissette, R. A., Ingraham, F. D., and Matson, D. D. Collections of Subdural Fluid Complicating Meningitis due to Haemophilus Influenzae (Type B). Preliminary Report. *New England J. Med.* 242: 20, 1950.

³ Smith, M. H. D., Dormont, R. E., and Prather, G. W. Subdural Effusions Complicating Bacterial Meningitis. *Pediatrics* 7: 34, 1951.

possible to define the etiological agent and assess the severity of infection within 30 minutes after the spinal fluid reaches the laboratory. In a minority in whom immediate diagnosis is not possible, the infectious agent can usually be grown and identified within 12 to 18 hours. Most hospitals are not equipped to make such a rapid diagnosis. If the 100% recovery rate is to be approached, this service must be made available in the future by all hospitals.

RAPID ELIMINATION OF INFECTING ORGANISM

The second principle in optimal therapy is that the infecting organism must be eliminated in the shortest possible time. The multiple antibacterial agents that have been found to be effective against the most frequent varieties of meningitis are listed in table 1. In making the choice in individual cases, a number of guides are useful in selection of a therapeutic program that will result in the most rapid elimination of the infectious agent.

Prevention of Resistance—Two agents should be used that work through different mechanisms of action to prevent emergence of resistance. Each species of bacteria studied has been shown to possess a protective mechanism against any clinically effective antibacterial agent. Provided the bacterial population is large enough, any strain sensitive to an antibacterial agent always contains a minute proportion of cells that resist concentrations lethal for the bulk of the population. Resistant bacterial cells arise spontaneously by mutation; they are therefore selected out for survival when the rest of the population is eliminated by the antibacterial agent. The resistant cells multiply, apparently uninfluenced by the antibacterial agent used, sometimes even thriving on it, they breed true, and thus make up most or all of the population.

Two patterns of emergence of resistance have been described; they are now known as the penicillin pattern and the streptomycin pattern.⁴ The pattern of resistance brought out in bacteria by these two antibiotics accounts for the higher degree and greater frequency and speed of emergence of resistance to streptomycin. The difference in the two patterns may be summarized as follows. A single mutational step that results in a cell resistant to penicillin invariably produces one that exhibits only a slightly higher degree of resistance, a truly high degree can occur only by the accumulation of a number of mutational steps. In contrast, a single mutational step leading to a cell resistant to streptomycin may produce a cell with either a low or high degree of resistance, for example, resistance to more than 1,000 µg per milliliter. From these facts it is apparent that an antibiotic that brings out the streptomycin resistance pattern can never be given in high enough dosage to prevent emergence of resistance. On the other hand, large enough doses of penicillin from the beginning can prevent the first step mutants from surviving if the infecting organisms have not been exposed to penicillin earlier. It is apparent that the pattern of resistance brought out by an antibiotic is one of its most important traits.

Spontaneously occurring mutants resistant to one agent may be normally sensitive to another, indicating different mechanisms of action of the antibiotics. In

table 2 the available knowledge on this subject is summarized. It has been shown that for the gram-positive coccid infections and *Neisseria meningitidis* penicillin must act through a mechanism that differs from that of the sulfonamides. It also differs from that of the newer antibiotics, aureomycin, chloramphenicol and oxytetracycline (Terramycin), since the mutants resistant to penicillin are sensitive to these newer antibiotics. Penicillin plus any one of the latter group can prevent emergence of resistance of strains showing initial normal sensitivity to both agents. Against the gram-negative bacillus group, streptomycin apparently differs in its mechanisms of action from the agents listed below in

TABLE 1—Multiple Agents Effective* Against Organisms That Are Common Causes of Pyogenic Meningitis

Organisms	Rabbit serum	Sulfonamide	Penicillin	Streptomycin	Aureomycin	Chloramphenicol	Oxytetracycline	Polymyxin	Bactracin
<i>H. influenzae</i>	+	+	0	+	+	+	+	+	0
<i>N. meningitidis</i>	+	+	+	+	+	+	+	—	—
<i>D. pneumoniae</i>	+	+	+	+	+	+	+	—	+
<i>Str. pyogenes</i>	0	+	+	+	+	+	+	—	+
<i>M. pyogenes</i>	0	+	+	+	+	+	+	—	+
<i>E. coli</i>	0	+	0	+	+	+	+	+	0
<i>Salmonellae</i>	0	+	0	+	+	+	+	+	0
<i>Ps. aeruginosa</i>	0	0	0	+	+	+	+	+	0

+ = effective antibacterial action 0 = antibacterial action insignificant
 cant ± = antibacterial action inefficient — = not determined

TABLE 2—Use of Complementary Therapeutic Agents to Prevent Emergence of Resistance

Complementary Agents*	Cause of Meningitis	Recommended Combinations
Penicillin SD BT AM CM TM	<i>N. meningitidis</i> <i>D. pneumoniae</i> <i>Str. pyogenes</i> <i>M. pyogenes</i>	SD + P P + SD + after 8 hr CM P + SD + after 8 hr CM P + after 8 hr CM
Chloramphenicol SD SM PM	<i>H. influenzae</i> <i>E. coli</i> <i>K. pneumoniae</i> <i>Salmonellae</i>	CM + SD SM + CM + SD SM + CM + SD CM + SM
Streptomycin SD AM CM TM		
Streptomycin PM INH PAS	<i>M. tuberculosis</i> <i>Ps. aeruginosa</i>	SM + INH + PAS? PM + SM

* P = Penicillin SD = Sulfadiazine BT = Bactracin AM = Aureomycin CM = Chloramphenicol TM = Oxytetracycline SM = Streptomycin PM = Polymyxin INH = Isoniazid PAS = Para aminosalicylic Acid

table 2, since mutants resistant to streptomycin are normally sensitive to sulfadiazine, aureomycin, chloramphenicol, and oxytetracycline. Demonstration that chloramphenicol in conjunction with sulfadiazine has a therapeutic efficacy equal to the combined action of streptomycin and sulfadiazine for treatment of *Hemophilus influenzae* meningitis represents an important advance. As shown in table 2, chloramphenicol apparently works through a mechanism that differs from that of sulfonamides, streptomycin, and polymyxin. Therefore the broad bacterial action of chloramphenicol, the fact that good concentrations can be attained in spinal fluid after oral or parenteral administration and the fact that, if resistance should emerge, it would be of the peni-

4 Demerec M. Patterns of Bacterial Resistance to Penicillin, Aureomycin and Streptomycin. *J. Clin. Investigation* 28: 891, 1949

cillin pattern rather than the streptomycin type make it an important agent in the treatment of meningitis

The suggestion in some reports that chloramphenicol causes aplastic anemia has not been proved. Evidence of a cause and effect relationship is lacking. I have not been able to demonstrate injury when chloramphenicol is given for 10 days in large doses (orally, 200 mg per kilogram of body weight daily, or intramuscularly, 100 mg per kilogram daily). The mortality statistics in 16 states in which aplastic anemia is listed as a cause of death showed an incidence of deaths from idiopathic aplastic anemia during the period preceding the use of chloramphenicol as high as that which has been recorded in the 8 to 9 million persons who have been treated with this antibiotic. Moreover, evidence on the state of the hematopoietic system prior to chloramphenicol therapy

TABLE 3—Optimal Therapeutic Regimen in Most of the Common Forms of Pyogenic Meningitis

Causative Organism	Therapeutic Agents	Dose	Route	Duration of Therapy, Days	No. of Intrathecal Injections
A Meningitidis	SD	Enough for blood level of 10-15 mg per 100 cc	Subcutaneous & oral	1	
	P*	1 million units twice daily	I M	4	
H Influenzae	CM	100 mg per kilogram or 200 mg per kilogram daily	I M	7	
	SD	Same as above	Oral	7	
D pneumoniae	P†	12 million units daily	I V	3	1 (10-25 mg)
	P*	1 million units twice daily	I M	4	
Str pyogenes	SD	As above		7	
	CM	As above given 3 hr after penicillin		7	
M pyogenes (Staphylococcus)		Same agents and doses as for D pneumoniae		10	4
Esch coli	SM	40 mg per kilogram daily	I M	2	1 (5 mg)
	SD	As above		7	
	CM	As above		7	
Pa aeruginosa (Pseudomonas)	PM	2.5 mg per kilogram daily	I M	2	1 (2.5 mg)
	SM	40 mg per kilogram daily	I M	2-4	1 (5 mg)

* Procaine penicillin
† Aqueous penicillin

is lacking in most persons in whom aplastic anemia developed in relation to administration of this antibiotic. The circumstantial evidence of a possible relationship between aplastic anemia and chloramphenicol calls for clear indications for the use of this antibiotic, but its great assets merit respect.

Use of Bactericidal Agent—In aiming for the most rapid elimination of the infectious agent, one of the agents used should, if possible, be primarily bactericidal when adequate concentrations are maintained long

enough. Penicillin is in this class for gram-positive cocci and Neisseria organisms, and streptomycin for the gram-negative bacilli. The sulfonamides are primarily bacteriostatic, but they play an important role as adjuncts. The newer antibiotics are generally bacteriostatic, but against *H. influenzae* they have been shown to have a rapidity of action that I would classify as bactericidal.

Bactericidal Concentrations—In order to obtain the most rapid elimination of the infectious agent, bactericidal concentrations must be attained rapidly in the spinal fluid. The bactericidal concentrations must be maintained constantly over a long enough period to kill the organisms during their first exposure.

ANTIBIOTIC ANTAGONISM

Recommendations for use of more than one agent raise the controversial question of antibiotic antagonism. There is no evidence that the interesting laboratory phenomenon reported by Gunnison and associates⁵ limits the therapeutic efficacy of the antibiotics in human infections to a significant degree. The phenomenon that these authors label "antagonism" consists in the slowing of the bactericidal action of low concentrations of penicillin in the presence of low concentrations of the newer antibiotics. It is important to emphasize that Jawetz and co-workers⁶ report that experimental evidence for antagonism cannot be demonstrated under the following circumstances: (1) when the organisms are exposed to even low concentrations of penicillin at least one hour prior to low concentrations of the second agent and (2) when the two agents are used according to a dosage schedule comparable to those in general use for treatment of human infections. When penicillin was used along with chloramphenicol for hemolytic *Streptococcus* infections in mice according to a schedule that maintained adequate levels for three days, Ahern and co-workers⁷ could not confirm antagonism *in vivo*, thus failing to confirm the earlier report of Jawetz and collaborators.⁸ To prevent any hypothetical slowing of the action of penicillin by a second agent as an adjunct, it is recommended that penicillin be administered two hours before the second agent. Otherwise there are no indications that this interesting laboratory phenomenon should influence selection of antibiotics.

Jawetz⁹ has warned against the combined use of a bactericidal antibiotic with an agent that is bacteriostatic on the premise that the bactericidal action will be delayed. The therapeutic superiority of the combined action of penicillin and sulfonamides over the action of penicillin alone in pneumococcus meningitis and the greater efficacy of the combined action of streptomycin and sulfadiazine as compared with that of streptomycin alone for treatment of *H. influenzae* meningitis demonstrate that this premise is not justified.

REDUCTION OF INTRATHECAL THERAPY

The third principle of optimal therapy is that intrathecal therapy should be reduced to a minimum. The aim to reduce intrathecal therapy to a minimum is occasioned not by evidence that complications are caused by reasonable doses intrathecally but by the fact that it is now unnecessary except under the circumstances outlined in table 3.

5 Gunnison J B, Coleman V R and Jawetz E: Interference of Aureomycin and of Terramycin with Action of Penicillin in Vitro. *Proc Soc Exper Biol & Med* 75: 549, 1950.

6 Jawetz E, Gunnison J B, Speck R S and Coleman V R: Studies on Antibiotic Synergism and Antagonism. Interference of Chloramphenicol with Action of Penicillin. *A M A Arch Int Med* 87: 349 (March) 1951.

7 Ahern J J, Burnell J M and Kirby W M M: Lack of Interference of Chloramphenicol with Penicillin in Hemolytic Streptococcal Infection in Mice. *Proc Soc Exper Biol & Med* 79: 568, 1952.

8 Jawetz E and Speck R S: Joint Action of Penicillin with Chloramphenicol on Experimental Streptococcal Infection of Mice. *Proc Soc Exper Biol & Med* 74: 93, 1950.

9 Jawetz E: Antibiotic Synergism and Antagonism. *A M A Arch Int Med* 90: 301, 1952.

Dowling and his associates¹⁰ have demonstrated that the enormous doses of penicillin listed in table 3 given intramuscularly or intravenously will result in concentrations in the spinal fluid that are bactericidal against pneumococci and streptococci. There is a lag period of 8 to 12 hours, however, before optimal concentrations are reached in the spinal fluid. Therefore a single intrathecal injection of the dose indicated in table 3 is considered essential for optimal therapy. Staphylococcal meningitis, because of the frequency of resistant strains, the higher concentrations of penicillin, and longer periods needed for killing, requires more than a single dose in intrathecal therapy, one injection daily for four days is recommended.

Adequate sulfadiazine concentrations in the spinal fluid are attained when a blood level of 10 to 15 mg per 100 cc is maintained. This is best accomplished during the first 24 hours by using the subcutaneous route. The dose on a weight basis varies with age. Infants are given 0.1 gm per kilogram at 12 hour intervals for two doses, and older children and adults about one-half this dosage. The fluid intake must be great enough to ensure good urinary output when these doses are given.

Streptomycin concentrations in the spinal fluid after intramuscular administration of 40 mg per kilogram daily fall considerably below those known to be optimal for rapid elimination of gram-negative or tubercle bacilli. If the main reliance is being placed on streptomycin, intrathecal administration is recommended. The development of chloramphenicol, however, reduces the need for streptomycin in pyogenic meningitis, it is still clearly needed in tuberculous meningitis, and in this disease intrathecal administration of streptomycin appears to be essential. Among the newer antibiotics, only with chloramphenicol can optimal concentrations be maintained in the spinal fluid by oral, intramuscular, or intravenous administration.

USE OF SAFE AGENTS

The fourth principle is that agents that may injure patients are to be avoided if others that are safe are equally good. As seen in table 3, it is now possible to avoid, to a large degree, agents that may injure the patient, such as streptomycin, polymyxin B, and bacitracin. Only in tuberculous meningitis is there justification for accepting the risk of damage by the usual streptomycin therapy. In *Pseudomonas* meningitis, polymyxin B is so superior to other agents that the potential hazards are accepted. Recent experience suggests however, that when polymyxin B is used in a dosage of 4 doses of 2.5 mg per kilogram per day given intramuscularly for two days, and with one intrathecal dose of 2 to 5 mg, significant toxicity can be avoided. The knowledge that chloramphenicol can be effective against staphylococci resistant to penicillin usually makes it unnecessary to accept the risks of damage by bacitracin. Two new antibiotics, erythromycin and magnamycin, are also effective against staphylococci that are resistant to penicillin, both appear to be safe.

The duration of treatment will necessarily be conditioned by the stage of infection, treatment is discontinued only when all signs indicate that the infection has been eliminated. The most important of the signs are disap-

pearance of the infecting organisms and normal concentrations of sugar and protein in the spinal fluid.

Tuberculous meningitis is not included in table 3, but the advances in this field warrant an outline of the present status. Although streptomycin in conjunction with *p*-aminosalicylic acid and Promizole (2-amino-5-sulfamylthiazole) represents an outstanding contribution to the treatment of tuberculous meningitis, it is now known that it falls far short of optimal therapy, the survival rate seldom exceeds 50% and persistent cerebral injury of a degree that disturbs function occurs in a significant proportion of the survivors. In addition long periods of intramuscular streptomycin therapy and use of the intrathecal route cause damage to vestibular function in virtually all patients and reduction of hearing in a significant percentage.

It is of interest that emergence of resistance to streptomycin is seldom the cause of failure of therapy in tuberculous meningitis when *p*-aminosalicylic acid either alone or along with Promizole is used in conjunction with streptomycin. The growth of sensitive tubercle bacilli for many weeks after the start of treatment or after a period of negative cultures with recrudescence of the meningitis suggests that the organisms have been protected from the action of streptomycin, which otherwise would select out the spontaneously occurring resistant mutants. There is reason to believe that fibrin protects the organisms from streptomycin.

OTHER REQUIREMENTS

Optimal therapy for tuberculous meningitis must meet three additional requirements. 1 Treatment must be given earlier in the course of infection. 2 A fibrin-removing agent must be found. For this purpose, streptokinase and purified protein derivative of tuberculin are being studied. 3 A second powerful therapeutic agent that will make it possible to reduce the period of streptomycin treatment and thus decrease streptomycin toxicity must be found. Isoniazid, which is being studied for this purpose, may meet this requirement.

The present therapeutic program for treatment of tuberculous meningitis combines the action of streptomycin intramuscularly and intrathecally and *p*-aminosalicylic acid and isoniazid orally. Purified protein derivative of tuberculin is used intrathecally¹¹ in alternate cases. The program aims to use the shortest period of streptomycin therapy both intramuscularly and intrathecally. The intrathecal administration of streptomycin has been discontinued after one week, intramuscular streptomycin therapy is continued along with oral *p*-aminosalicylic acid and isoniazid therapy until the spinal fluid is normal. Although it is too soon to evaluate this program, the early results are very encouraging.

SUMMARY

The potential 100% recovery rate from the most frequently occurring varieties of pyogenic meningitis is far from being realized. Optimal therapy is essential in order to reach this goal. The following principles have

10 Dowling H F and others. Treatment of Pneumococcal Meningitis with Massive Doses of Systemic Penicillin. *Am J Med Sc* 217:149 1949.

11 Smith H V and Vollum R L. Effects of Intrathecal Tuberculin and Streptomycin in Tuberculous Meningitis. Interim Report. *Lancet* 2:275 1950. Cairns H, Smith H V and Vollum R L. Tuberculous Meningitis. *J A M A* 144:92 (Sept 9) 1950.

been found to be valuable guides to optimal therapy 1 For therapy to be optimal it must be applied early in the course of meningitis 2 The infecting organism must be eliminated in the shortest possible time Two agents that work through different mechanisms of action must be used to prevent emergence of resistance In aiming for the most rapid elimination of the infectious agent, one of the agents used should, if possible, be primarily bactericidal when adequate concentrations are maintained long enough In order to obtain the most rapid elimina-

tion of the infectious agent, bactericidal concentrations must be attained rapidly in the spinal fluid and maintained constantly over a long enough period to kill the organisms during their first exposure 3 Intrathecal therapy should be reduced to a minimum 4 Antibiotics that may injure patients are to be avoided if others that are safe are equally good The application of these principles in the most frequently occurring varieties of meningitis is outlined

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TATTOOING OF NEVUS FLAMMEUS FOR PERMANENT CAMOUFLAGE

Herbert Conway, M D , New York

The obliteration of nevus flammeus (port-wine stain) presents a problem for which neither surgical excision nor the various methods of nonsurgical treatment have provided a satisfactory solution The psychological importance of nevus flammeus to the person who bears this birthmark is frequently so great as to have adverse effects on his personality and social adjustment It is, therefore, especially unfortunate that the methods of treatment in general use fail to bring about the necessary cosmetic obliteration of this congenital deformity

The nonsurgical procedures that have been employed include electrodesiccation, cauterization, distance application of ultraviolet light, and use of carbon dioxide snow, liquid air, ignipuncture, electrolysis, ultraviolet therapy with a Kromayer lamp, x-ray therapy, or radium therapy All these methods must be applied to the lesion through the overlying skin, with consequent injury to or destruction of the skin and subcutaneous tissue Thus, the nevus flammeus is replaced by scarring, which in some cases is even more noticeable and objectionable than the original lesion

Advance in plastic surgery aroused hope that excision, followed by skin grafting, might provide a satisfactory mode of treatment When the area covered by the defect is small, esthetically satisfying results may be obtained with regional flaps or with small free grafts of skin taken from the postauricular or the supraclavicular regions, since these match the color of the surrounding skin In cases in which the nevus flammeus involves an extensive area, however, excision and skin grafting has not been satisfactory Large free grafts must be taken from a protected surface of the body, where the skin differs greatly from that of the face in both color and texture

These considerations led to the search for some means by which the objectionable color of the birthmark could

be camouflaged permanently, without destruction of the overlying skin Since nevus flammeus does not undergo malignant degeneration or increase in size with the passage of time, any procedure that provides a lasting neutralization of the color, without ill effects, meets the criterion for successful treatment

There are three types of nevus flammeus (a) subepidermal, in which the abnormal capillary dilatations that impart the characteristic red or purple color to the birthmark lie under the epidermis in the subpapillary zone of the skin, (b) dermal, in which the abnormal capillaries are chiefly in the midcutis, and (c) subdermal, in which they are in the subcutaneous tissue, subadjacent to the dermis (Andrews¹) (fig 1) When the abnormal capillaries are subdermal or in the deeper portion of the dermis, tattooing, or the injection of insoluble pigments into the dermis overlying the nevus flammeus, has been found to provide a satisfactory method of treatment This method was first reported by Brown, Cannon, and McDowell in 1946² With nevus flammeus of the subepidermal type, the treatment is not effective, since the pigment must be deposited in the dermis if it is to remain permanently Experience has shown, however, that a high percentage of these nevi fall into the classification in which tattooing achieves the desired result.

HISTORICAL BACKGROUND *

The practice of tattooing is of great antiquity and widespread geographical distribution Anthropological evidence indicates that it existed in prehistoric times Among early civilizations, it has been traced as far back as 2000 B C in Egypt and 1100 B C in China It's use has usually been motivated by desire for personal adornment or relationship to religious rites or magical practices It has also been used for purposes of identification

The therapeutic application of tattooing for remedying defects in coloration is said to have been tried as early as the second century A D by Galen, the great Greek physician and medical writer Tattooing of the cornea in cases of leukoma is attributed to him, but little is known of this early work The first definite record of therapeutic tattooing is Pauli's report in 1835 of its use in the treatment of nevi, "congenital purple plaques," and other lesions of the skin In 1848, Cordier advocated tattooing for nevi In 1858, Schuh conceived the idea of using skin

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Read before the American Academy of Dermatology and Syphilology Chicago Dec 11 1952

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1 Andrews G C Diseases of the Skin for Practitioners and Students ed 3 Philadelphia W B Saunders Company 1946

2 Brown J B Cannon B and McDowell A Permanent Pigment Injection of Capillary Hemangiomata *Plast & Reconstruct. Surg.* 1: 106 1946

* Historical references may be obtained from previous publications by the author

previously tattooed and then transplanted to the site of repair in the technique of cheiloplasty. In 1879, de Wecker employed India ink successfully in coloring the corneal parenchyma. Tattooing of the cornea was again reported by Chevallereau and Polack³ in 1906. In 1911, Kollé described a method of tattooing with rose pigment to change the contour of the vermilion border of the lip. He also recommended tattooing of nonadherent, flat, white scars to improve their appearance. Dufourmentel, in 1919, stated that tattooing appeared to be useful in dealing with wounds, scars, burns, and perhaps also nevi. He credits Mauclairé with having successfully employed the method of Schuh in the treatment of a case of cancer of the lip. Gold and platinum were used to tattoo scars of the cornea by Knapp in 1925 and by Dugan and Nanavati in 1936.

In 1938, a therapeutic use of a somewhat different order was reported by Hollander,⁴ who employed tattooing not for a cosmetic result but to relieve the symptoms of pruritus ani. He states that the idea was suggested to him by the observation that cutaneous syphilis did not involve portions of the skin that had been tattooed with mercuric sulfide (cinnabar). In each of 15 patients with primary pruritus ani whom Hollander treated by tattooing with mercuric sulfide the itching was relieved and the texture of the skin returned to normal. He also used the method successfully in pruritus vulvae and pruritus scroti.

Hance and co-workers,⁵ in 1944, reported the use of tattooing over a period of eight years as an adjunct to plastic surgery to achieve a better effect in the coloration of skin grafts and flaps and to simulate the missing vermilion of lips. No complications resulting from the tattooing were observed. Byars (1945)⁶ also called attention to the procedure as a safe and satisfactory method of obtaining better cosmetic results in plastic surgery. His observations included those of a series of 60 cases of free skin grafts or flaps of tissue on the face. In 1947 Matthews⁷ stated that he had found tattooing a valuable adjunct to the plastic repair of facial wounds and burns. In dealing with scar tissue, he considered the method much less effective. Several reports have been published by Pickrell and his co-workers on the use of corneal tattooing for the restoration of the color of the eye in selected ocular conditions. In their most recent communication, they state that the method has been used "more than 75 times during the past six years, without complications" and with gratifying results.

In 1946, a case was reported by Brown, Cannon, and McDowell² in which permanent injection of pigment white (zinc oxide) was used to neutralize the color of a nevus flammeus, with good results. The following year, Conway and Docktor⁸ described their experience with treatment of nevus flammeus by tattooing in seven cases. The outcome was successful in all these cases, and there were no complications. I reported additional evidence of the value of tattooing in nevus flammeus of the dermal or subdermal type.⁹

TECHNIQUE

Full attention to asepsis is essential in procedures involving the injection of pigment into the dermis, to avoid the possibility of transmission of disease. In discussing

tattooing for ornamental purposes, Madden,¹⁰ states that "local or systemic disease can be injected into the skin at the time of the operation. The manifestations of the injected disease may appear at once or later, the time depending on the particular characteristics of the disease." Smith¹¹ investigated the occurrence of hepatitis in recently tattooed service personnel and found evidence that the viable virus of serum hepatitis could be transmitted from one person to another by means of this process but that this could be prevented by the use of correct techniques.

In therapeutic tattooing at the plastic surgery clinic of the New York Hospital, the area to be treated is washed with soap and water, painted with an aqueous solution of benzalkonium chloride, and draped with sterile towels. Instruments and pigments are sterilized by autoclave. The surgical scrub technique is observed, and a sterilized gown and gloves are worn. The cutaneous area should be free from infection. Surgical drapes are applied.

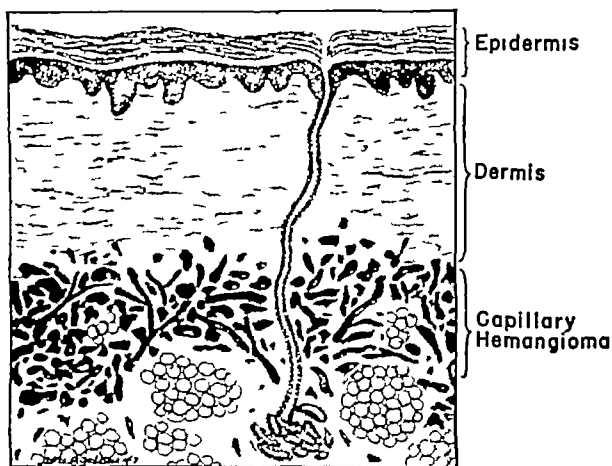


Fig 1—Histopathological sketch of the relation of the subdermal variety of nevus flammeus to the overlying dermis.

At first the standard electromagnetic device, with six needles, was employed. As the desirability of certain improvements became evident, a modified instrument[†] was developed (fig 2). This instrument is powered through

3 Chevallereau A and Polack A. Du tatouage coloré de la cornée. *Ann d ocul*. Par 136: 26, 1906.

4 Hollander E. Treatment of Pruritus Ani by Tatoo with Mercuric Sulfide. *Arch. Dermat & Syph* 38: 337 (Sept.) 1938.

5 Hance G, Brown J B, Byars L, and McDowell F. Color Matching of Skin Grafts and Flaps with Permanent Pigment Injection. *Surg. Gynec & Obst* 79: 624, 1944.

6 Byars L. T. Tattooing of Free Skin Grafts and Pedicle Flaps. *Ann Surg* 121: 644, 1945.

7 Matthews D N. Technique and Value of Tattooing in Plastic Surgery. *Proc Roy Soc Med* 40: 881, 1947.

8 Conway H and Docktor J P. Neutralization of Color in Capillary Hemangiomas of the Face by Intradermal Injection (Tattooing) of Permanent Pigments. *Surg. Gynec & Obst* 84: 866, 1947.

9 Conway H. Evolution of Treatment of Capillary Hemangiomas of the Face with Further Observation on the Value of Camouflage by Permanent Pigment Injection (Tattooing). *Surgery* 23: 389, 1948. Conway H. The Permanent Camouflage of Port Wine Stain of the Face by Intradermal Injection of Insoluble Pigments (Tattooing). *New York State J Med* 48: 2040, 1948.

10 Madden J F. Reactions in Tattoos (Chronic Discoid Lupus Erythematosus). *Arch. Dermat & Syph* 60: 789 (Nov. pt 1) 1949.

11 Smith B F. Occurrence of Hepatitis in Recently Tattooed Service Personnel. *J A M A* 144: 1074 (April 7) 1950.

† The modified instrument is the Dermajector supplied by Codman and Shurtleff, 104 Brookline Ave., Boston 15, Mass.

a motor-driven flexible shaft and has the advantage of feeding the pigment paste slowly. The rate of flow is regulated by a screw. The oscillation rate of the needles is controlled during the operation by a foot pedal. As a rule, the slowest speed at which the needles will function effectively gives the best results. Set at the rate of 3,000

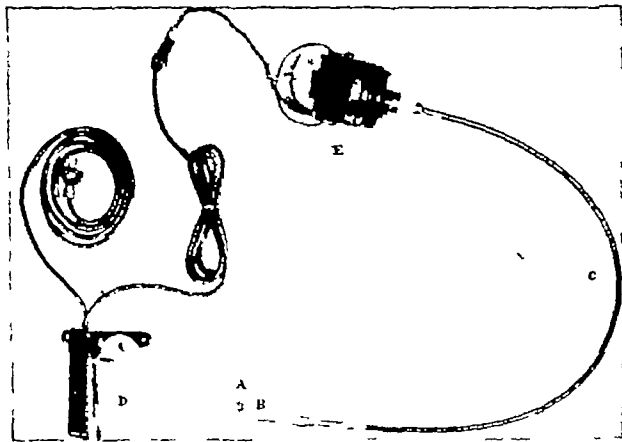


Fig 2—The instrument now used for permanent pigment injection. A the screw for regulating the flow of pigment. B the instrument, C the motor driven flexible shaft. D the foot pedal. E the motor.

to 3,500 revolutions per minute, the instrument functions effectively. The instrument is quiet when in operation, and the depth to which the needles penetrate is regulated easily. The pigments, mixed into a thick paste with sterile water, are placed (by brush) onto the skin and into the open end of the barrel of the instrument. The needles are inserted into the skin at an angle of about 60 degrees so that their excursion will deposit the particles of pigment in an oblique plane at varying depths in the dermis (fig 3). The depth to which the needles penetrate is

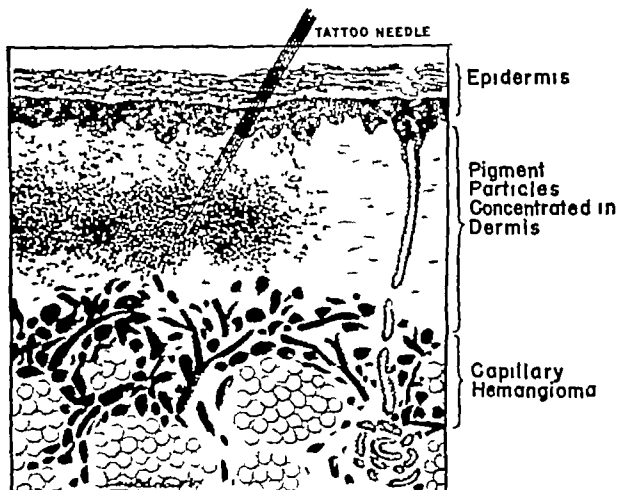


Fig 3—Histopathological sketch of the nevus flammeus after tattooing.

controlled by a set screw. Bleeding and exudation of serum during therapy are managed by sponging between the repeated applications of the instrument to the cutaneous surface. There need be no hesitancy in tattooing directly into the eyebrow or temporal hair line. In lesions extending to the margins of the eyelid, drops of tetracaine (Pontacaine) are put on the conjunctiva, and the lid is stabilized with an eyelid spatula (fig 4).

The following pigments are employed

White	Titanium dioxide
Yellow	Yellow ferric oxide
Red	Mercuric sulfide (cinnabar)
Flesh color	Ferric oxide
Blue	Cobalt (element)
Black	Black iron oxide (or carbon)
Green	Chromium oxide (chrome green)

In addition, ocher, sienna, and other earthy metallic oxides may be used. These pigments are insoluble and may be sterilized in an autoclave. For the covering of nevus flammeus, the basic pigment is white, occasionally mixed with a small amount of red, sometimes in combination with green, ocher, or sienna. The coloration of the patient's skin as well as the shade and intensity of color of the defect are taken into consideration in blending the pigments.

The first treatment is applied over a small area only, a record being kept of the combination of colors. A sterile petrolatum dressing is applied after the treatment. The patient is seen at the end of 24 hours, at which time a

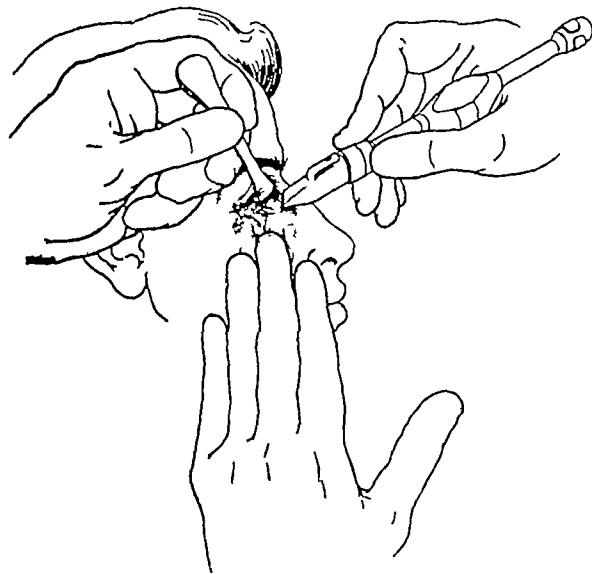


Fig 4—The technique of dermal injection of the cutaneous surface of the eyelid. The conjunctiva is anesthetized with tetracaine and the skin of the eyelid with procaine. An assistant holds the eyelid spatula in place. The technician produces downward traction on the malar skin as the instrument is applied to the area of the eyelashes.

crust is present over the area into which the pigment has been injected. This peels away in 6 to 10 days, after which the effect of the injection may be observed. Definite judgment should be postponed, however, until three or four weeks after the first treatment, because of the fact that, although most of the pigment is inserted in the dermis, some particles are deposited in the region of the capillary dilatations below the skin and some are left in the epidermis. Particles that enter the capillary dilatations of the nevus are carried off in the blood stream. Loss of those deposited in the epidermis occurs through desquamation, which requires several weeks to occur. Hence, the final effect of the injection cannot be evaluated until these processes are completed.

Once the combination of pigments best suited to the patient has been determined, treatments are given at intervals of four weeks until the entire lesion has been tattooed. An area of from 4 to 6 sq. in. may be treated in a period of one hour by a skilled technician. The pro-

cedure is attended by only slight discomfort, which the average adult patient tolerates without anesthesia. The comfort of the patient may be promoted by the mixing of the powdered pigments with solution of procaine (Novocaine) hydrochloride. There is no objection to the direct injection of procaine into the skin and subcutaneous tissues of the area under treatment if the degree of sensitivity of the patient to pain is such that this step is indicated. Children usually require local anesthesia. Treatment is delayed until the age of eight years if possible, as general anesthesia (ether) is necessary in younger children. In patients in whom general anesthesia has been necessary, the interval between treatments has been increased to three months, to prevent development of complications of anesthesia or undue aversion to the induction of anesthesia in the child. Because of the fact that lesions involving the upper lip usually show vascular engorgement, it may be necessary to repeat the dermal injections in that area one or more times. The technique of injection of the margin of the eyelid is shown in figure 4. Ideal results are obtained only when the technician shows patience and persistence.

SELECTION OF PATIENTS

Close inspection of the lesion gives the practiced eye a fairly accurate impression of its depth, i.e., whether it is subpapillary, dermal, or subdermal. In general, the lighter stains respond better than those of deep coloration. Biopsy shows that lesions in which the skin appears to be greatly engorged with blood are those in which the vascular dilatations are resident in the superficial part of the dermis. In such cases, pigment injection is not highly effective. Fortunately, only 15% of the patients encountered in my experience have been of this type. The remainder have sufficient normal dermis overlying the lesion to allow for the successful deposition of particles of pigment. In earlier experiences, it was my practice to rely on biopsy in the selection of patients for treatment. More recently, therapeutic trial treatment in questionable cases has been found to be a reliable guide to the probable result of complete treatment. In lesions of the malar area with extension to the upper lip it is observed regularly that the affected side of the lip is thicker and at a lower level than the unaffected side. This is due to the collection of blood in the lowermost part of the lesion with resultant greater dilatation of vascular channels. Extension of the lesion into the vermillion of the lip has not been effectively camouflaged by pigment injection. Fortunately, in women, this disfigurement is not often of importance, owing to the widespread use of cosmetics. Not many cutaneous lesions other than nevus flammeus have been treated by this method. It is felt that melanoma should not be treated this way, and vitiligo and post-traumatic scars do not respond to permanent pigment injection. For the color matching of skin grafts on the face pigment injection is satisfactory. Nevus flammeus in which the overlying skin has been scarred by previous radium therapy does not respond to pigment injection.

RESULTS OF TREATMENT

In a period of seven years, 310 patients with nevus flammeus have applied for treatment. Forty-seven (15%) of these were rejected because of evidence from biopsy

or trial treatment that the lesion was subepidermal and that treatment, therefore, would not be effective. Two hundred and sixty-three patients have been treated with the goal of satisfactory camouflage of the birthmark. Eighty-four patients were males and 179 were females. The youngest patient treated was 4 years old. Of the 263 patients, 192 have completed treatment. In 159 (83%) of these the camouflage is satisfactory in my opinion, and the patients have expressed satisfaction with the results. Usually women resort to the use of ordinary facial make-up after completion of treatment, but men have not felt the desire or need to use cosmetics. Forty-one patients are still receiving treatment, and no conclusions as to the success of therapy in these have been reached. Thirty patients have discontinued treatment for reasons related to such things as problems of travel and occupations. Thirty-three (17% of the 192 in whom treatment was completed) expressed dissatisfaction or disappointment with the results of pigment injection.

The 192 patients who completed treatment received a total of 1,344 treatments, an average of 7 treatments per patient. The smallest lesions were camouflaged in only two treatments, the first being adapted to coverage of the lesion and the second to accurate color match. Lesions covering about one-half the surface area of the face often required 12 to 20 treatments. Seven patients in whom port-wine stains covered large areas of both sides of the face required more than 20 treatments. In one case, 27 treatments were required.

COMPLICATIONS

Only twice in the course of 1,344 treatments was infection encountered as a complication. In one patient the area of cellulitis was diffuse and the patient had a temperature of 104 F. Recovery was rapid following the use of hot dressings and antibiotics. The end-result was not affected by the complication. In another, pustular dermatitis developed but responded quickly to local therapy. A mildly glazed appearance of the skin was an end-result of therapy in 20 cases. Thickening of the skin was noted in 16. These developments did not cause significant complaining by the patients. In 21 patients, one or several areas of small, elevated, cavernous hemangiomas developed during the course of therapy, presumably owing to trauma from the needles. This was managed successfully in all by excision of these small areas. There were no ocular complications.

SUMMARY

Results of treatment of 263 patients with nevus flammeus (port-wine stain) by tattooing are reported. Permanent camouflage by intradermal injection of insoluble, color-matched pigments was found to be successful only in patients in whom the lesion was subdermal or in the deeper portions of the dermis. Subpapillary nevus flammeus did not respond to the treatment. Forty-seven (15% of all patients applying for treatment) were rejected for this reason. Of 192 patients who completed treatment, the lesions of 159 (83%) were satisfactorily camouflaged. The technique of treatment is described, and complications are discussed.

MILIARIA

Walter B Shelley, M D , Ph D , Philadelphia

The physiological significance of the millions of sweat glands spread over the body surface is well known and appreciated, although there has been a general failure to recognize the significance of these tiny glands in the pathogenesis of skin disease. Studies in the last 10 years have indicated clearly that the sweat gland is either primarily or secondarily responsible for a wide variety of common dermatological disturbances. All of the disturbances result from a simple mechanical obstruction at the sweat duct opening, although the formation of sweat proceeds unimpeded, the free egress of this sweat onto the skin surface is prevented. In consequence, sweat is trapped and retained within the skin, leading to a remarkably varied clinical patterning. For many years,

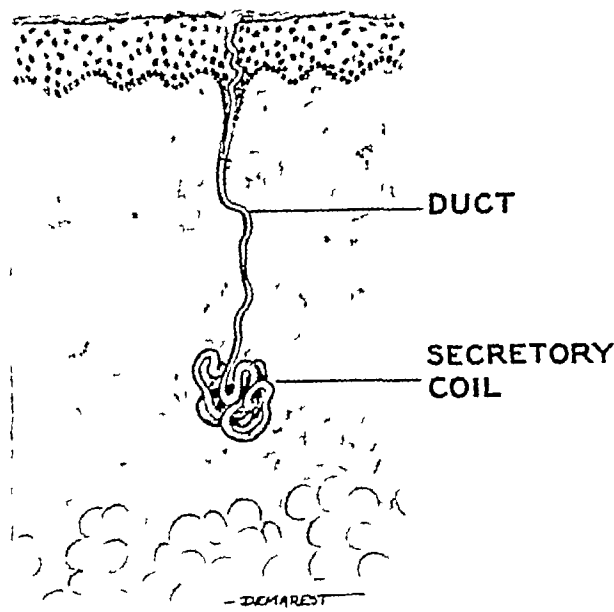


Fig. 1—Schematic representation of cross section of skin showing normal sweat gland

these clinical facets of sweat retention went unrecognized or were misdiagnosed. It is now possible to define more precisely and simply the clinical features and the pathogenesis of cutaneous disease caused by obstruction in the terminal sweat duct. At the same time, it is possible to eliminate numerous dermatological terms that have now been proved to be synonyms (fig 1).

The term *miliaria* is the generic designation for all skin changes arising as a result of sweat retention¹ and

is the best term to use in describing these changes. It is possible, however, on the basis of simple definitive clinical findings, to subdivide *miliaria* into four groups. Thus the term *miliaria* is analogous to the term *acne*, which is also a generic term encompassing various types of cutaneous changes due to sebum retention. Actually, in many instances, examples of all four types of *miliaria* may be seen in a single patient. This is especially true in patients with secondary *miliaria*. The significant classes of *miliaria* are (1) *miliaria crystallina*, superficial retention of sweat in stratum corneum, (2) *miliaria rubra*, retention of sweat within the epidermis, (3) *miliaria pustulosa*, retention of sweat in the epidermis with secondary leukocytic response, and (4) *miliaria profunda*, retention of sweat within the dermis.

Miliaria Crystallina—Clinically, *miliaria crystallina* is rarely seen in office practice. It causes the patient little or no concern, and, because of its superficial nature,² it is actually of short duration. In its primary form, it is seen most commonly in febrile hospital patients at bed rest. As a secondary *miliaria*, it is seen commonly in various dermatoses, such as sunburn, contact dermatitis, and pemphigus. It appears as a noninflammatory, asymptomatic eruption consisting of numerous small discrete vesicles (fig 2A). These are usually translucent and filled with colorless sweat. At times, however, they appear as white vesicles because of a thicker covering of stratum corneum. The fluid from either a translucent or a white vesicle is clear and colorless. The vesicles are so superficial that the slightest mechanical abrasion, by clothing or a towel, ruptures them.

Miliaria Rubra—Most commonly designated as prickly heat, *miliaria rubra* manifests itself as a pruritic, inflammatory papulovesicular dermatitis.³ It is perhaps the commonest of all skin diseases found in warm environments. It occurs either as a primary disorder or as a secondary complication of numerous skin diseases. The lesions are erythematous papules that are not located about hair follicles (fig 3A). A cardinal diagnostic sign of *miliaria rubra* is the rapid appearance and disappearance of the eruptions in conjunction with the elevations and reductions in body or environmental temperature. Many of the papules develop tiny vesicles or pustules at their apices. The typical sensation experienced by the patient is tingling, burning, or pricking. This sensation is aggravated by sweating and disappears completely when sweating stops. A point of particular note is that the affected areas show either hyperhidrosis or a normal sweat response. Usually over 90% of the glands function normally. The clinical features result from the occluded glands, which comprise only a small percentage of the total number of sweat glands. It is only in the very severe, recurrent *miliaria rubra* and *profunda* that anhidrosis is seen clinically. In these instances, the percentage of occluded glands is greatly increased.

The sites of predilection for *miliaria rubra* are the antecubital and popliteal fossae, the chest, the abdomen, and all areas of friction. It is never seen on the palms or soles, although it may occur anywhere else. It is usually

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¹ Shelley W B and Simons R D G Ph. The *Miliaria* Group of Dermatoses Including Prickly Heat in Handbook of Tropical Dermatology edited by R D G Ph Simons New York The Elsevier Press 1952 vol. 1.

² Robinson A R. *Miliaria* and *Sudamina* J Cutan & Ven Dis. 362 1884.

³ Sulzberger M B and Emik L O. Studies on Prickly Heat I Clinical and Statistical Findings J Invest Dermat. 7 53 1946.

bilateral and symmetrical. It never occurs in any area in which the sweat gland is absent or not functioning. At times, this is pointed out dramatically in patients who have had a sympathectomy. No miliaria will be seen in the areas affected by the sympathectomy, but it may be prominent elsewhere on the body. Prickly heat may affect nearly everyone if the climatic conditions are sufficiently severe. It is very common in infants who are overclothed. The course of miliaria rubra varies. Initially, a minimum latent period of from two to three days of profuse sweating is necessary, although a person may spend months in the tropics before the disease appears. Miliaria rubra persists and increases in severity on continuous exposure to heat.

Miliaria Pustulosa—Miliaria pustulosa or pustular miliaria is a special type of miliaria seen as a secondary complication in numerous skin diseases.⁴ It also develops secondary to the blocking of the sweat duct or pore. The clinical manifestation is numerous pustules not associated

of the glands are affected, gross anhidrosis is clinically evident. In the absence of sweating, the skin changes are minute and may be unobserved. There are no skin symptoms, but marked heat intolerance because of generalized anhidrosis may be seen in persons with miliaria profunda.



Fig 3—Miliaria rubra. A arrow points to primary lesion, a papule on erythematous base. B diagram shows keratinous plug extending into sweat duct and retention of sweat within epidermis.

COMMENT

From the histological standpoint, all four of these skin diseases have a basic common denominator, namely the blocking of the free flow of sweat to the surface of the

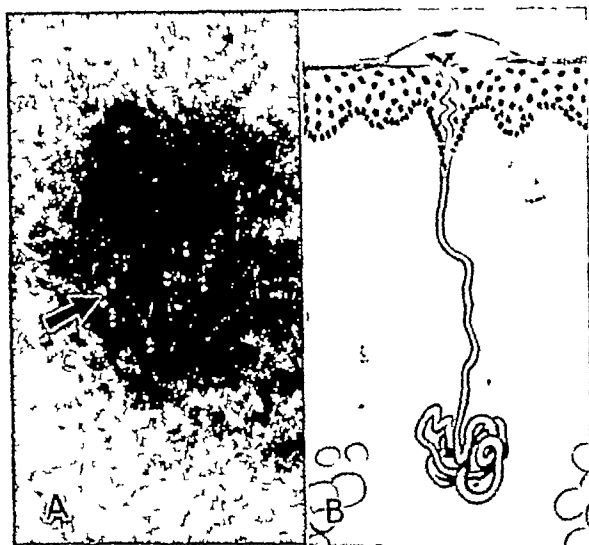


Fig 2—Miliaria crystallina. A arrow points to typical translucent vesicle. B diagram shows changes in skin and sweat gland with keratinous plug in orifice and retention of sweat in stratum corneum.

with hair follicles (fig 4A). Pruritus is severe and associated with sweating. The purulent material is white and is usually sterile. At times, however, the purulent material may become yellow, especially if a secondary invasion by *Staphylococcus aureus* occurs. The pustules are always limited to the areas or sites of the previous or concurrent skin disease. Again the percentage of glands affected is small, so no anhidrosis is clinically evident.

Miliaria Profunda—Miliaria profunda is the term designating the cutaneous changes that occur in patients suffering from tropical anhidrotic asthenia.⁵ The affected skin is studded with numerous noninflammatory papules that show a sweat pore arrangement (fig 5A). None of the papules is found at the site of hair follicles. As in all miliarias, the cardinal diagnostic sign is the increase in size of the papules whenever vigorous sweating occurs. Although clinically the lesions are papules, actually they are collections of fluid in the dermis, and accordingly, at times, it is possible to release free fluid from the papule simply by breaking it with a needle. Generally, since most

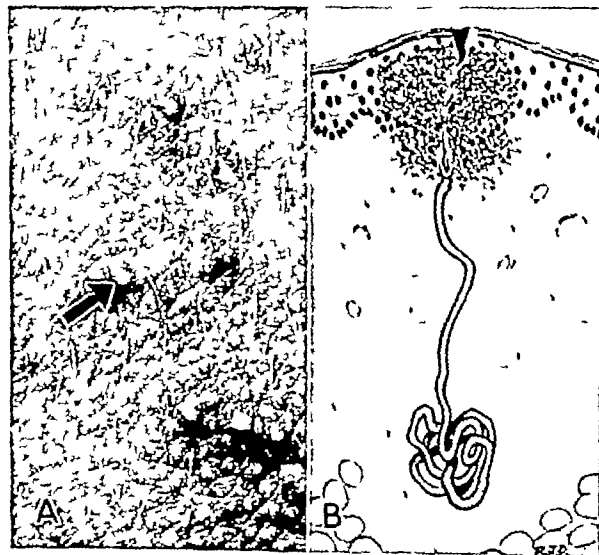


Fig 4—Miliaria pustulosa. A arrow points to typical white pustule not associated with hair follicle. B diagram shows sweat retention in epidermis and leukocytic response.

skin by an obstruction of the sweat duct or pore. In miliaria crystallina, the obstruction is extremely super-

4 Lobitz, W. C. Jr. Pustular Miliaria: Sweat Retention Phenomenon Complicating Common Dermatoses. *J. A. M. A.* 148:1097 (March 29) 1952.

5 Shelley, W. B., Horvath, P. N., and Pillsbury, D. M. Anhidrosis: An Etiologic Interpretation. *Medicine* 29:195, 1950.

ficial and the trapped sweat remains within the outer dead skin layer (fig 2B). In miliaria rubra, the sweat is trapped within the epidermis (fig 3B). Miliaria pustulosa presents the same picture except that numerous leukocytes are seen in the epidermal lesion, and a pustule results (fig 4B). In miliaria profunda or the deep type of miliaria, the obstructive changes in the sweat duct extend down through the epidermis resulting in sweat retention in the dermis proper (fig 5B). In all, the prime feature is sweat retention, sweat is secreted into the skin instead of onto the skin.

From the etiological standpoint, it is now possible to unify these miliarias on the basis of a common pathogenesis. In the primary types of miliaria, prolonged maceration of the skin surface with sweat serves as a minor, nonspecific epidermal injury that produces abnormal keratinization and resultant occlusion of the sweat duct orifice. This is the usual antecedent history in miliaria crystallina and miliaria rubra. In miliaria

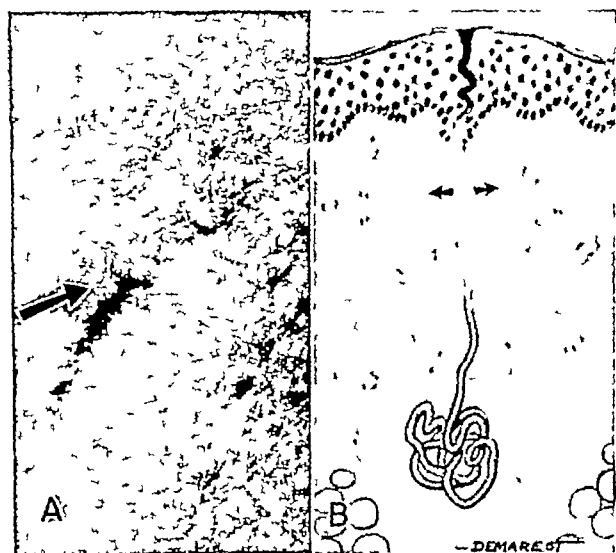


Fig 5—Miliaria profunda. A, arrow points to typical flesh-colored papule. Entire area is studded with papules except elliptical portion from which a biopsy was taken. B, diagram shows deep keratinous plug and sweat retention in dermis.

pustulosa, the changes are usually produced by a preceding dermatitis. It is interesting that miliaria profunda commonly arises as a disturbance secondary to prolonged, recurrent miliaria rubra. Miliaria rubra and miliaria pustulosa are both accompanied by pruritus that probably arises as a result of stimulation of free nerve endings by sweat seeping into the epidermis. Neither miliaria crystallina nor miliaria profunda show any skin symptoms.

Experimentally it has been possible to induce all four types of miliaria by various injuries to the sweat duct orifice.⁶ From a differential diagnostic standpoint, miliaria probably is not recognized oftener than it is misdiagnosed. Secondary miliaria is extremely common in

the presence of various dermatitides in patients in warm environments. Failure to recognize the presence of secondary miliaria leads to several pitfalls. In many instances, it may be felt that the primary dermatosis is becoming worse, and, therefore, a more intensive program of topical medication is undertaken. This causes unnecessary alarm to the patient and to the physician, it adds to the danger of inducing a sensitivity reaction. At other times, miliaria pustulosa is misdiagnosed as a secondary bacterial folliculitis, and consequently useless antibiotic therapy is employed. Finally, the most important consequence of the failure to recognize the presence of miliaria is that the patient is not advised of the importance of sweat reduction.

THERAPY

This, fortunately, is a group of diseases in which the cause can be removed. Elimination of sweating will bring a prompt improvement in all of these miliarias. This reduction in sweating must be achieved by physiological measures. In other words, the stimulus to sweating must be removed by reduction of the internal heat load or the environmental heat load. Drugs should not be used. In many patients in whom primary or secondary miliaria is a prominent, chronic problem during the long summer months, the use of an air-conditioner is of great benefit. In this regard, it is important to emphasize the fact that residence for eight hours a day in a room kept at moderate temperatures is sufficient to eliminate the major portion of miliaria. In lieu of air-conditioning, measures should be instituted to improve ventilation and to reduce the atmospheric humidity. The use of fans is also of benefit, since they increase heat-loss by evaporation and reduce maceration. Particular note should be made of the fact that, in the case of troops in the tropics, those persons with a high susceptibility to miliaria should be transferred to a temperate zone. The patient not only should be advised of the dangers of prolonged macerative effects of sweating but should also be warned of the danger of using any agents on the skin that are even mildly injurious to the epidermis. This includes too frequent bathing, excessive use of soap or detergents, and use of irritating topical medicaments and clothing or accessories that cause friction.

Although this is a group of diseases in which the cause is known and for which measures can be taken to produce a cure, economic and practical considerations are often such that persons are forced to work under atmospheric conditions that produce and accentuate miliaria. As a result, patients and physicians alike turn to topical medicaments as a means of relieving the condition. These preparations actually offer little more than a token of psychotherapy, yet tons of lotions, powders, and ointments are expended yearly in the fight against miliaria. It is doubtful that any beneficial effect is achieved by this mass attack on a self-limited although extremely annoying dermatitis. I inveigh against the use of such preparations, since they are double-edged swords. Any irritative effects they have on the skin are rapidly transformed into more plugging and obstruction of the sweat gland orifices.

6 Shelley W B. Experimental Miliaria in Man. IV. Sweat Retention Vesicles Following Destruction of Terminal Sweat Duct. *J Invest Dermatol* 15: 53, 1951. O'Brien J P. The Etiology of Pore Closure. An Experimental Study of Miliaria Rubra, Bullous Impetigo and Related Diseases of the Skin. *J Invest Dermatol* 15: 95, 1950.

SUMMARY

As a result of recent clinical and laboratory research, it is possible to integrate our knowledge concerning the obstructive disorders of the sweat gland. Miliaria is the generic term for cutaneous changes occurring when sweat is trapped in the duct of the sweat gland by an obstruction of the terminal end of the duct. The four types of miliaria that are seen depend on the depth at which sweat is trapped within the skin. These four types are miliaria crystallina, miliaria rubra, miliaria pustulosa, and miliaria profunda.

Diagnosis of the miliarial group rests on the correct recognition of vesicles, pustules, or papules, with or without erythema, which appear dramatically whenever sweating is induced. The development of secondary miliaria of all types commonly occurs in areas of dermatitis in patients in warm environments and, as such, is a prime factor in the flare-ups and chronic nature of skin disease during the summer. Treatment is specific and effective. It includes all measures that reduce the need for sweating. Topical and systemic therapy are without specific value.

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SUCCESSFUL RESECTION OF ANEURYSM OF THORACIC AORTA AND REPLACEMENT BY GRAFT

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Various procedures have been used in the surgical treatment of intrathoracic aortic aneurysms. These have been recently reviewed¹ and classified as follows: (1) those designed to promote thrombosis and fibrotic organization of the process by ligation, introduction of foreign material, or periarterial fibroblastic reaction, (2) endoaneurysmorrhaphy, and (3) extirpation of the lesion with or without restoration of blood flow through the parent vessel. With the exception of the last method, most of these procedures have proved generally unsatisfactory. Obviously the procedure of choice is extirpation of the diseased part and restoration of normal function, but this has been successfully accomplished in only a relatively small number of cases of sacciform aneurysms¹ or those associated with coarctation.² So far as we have been able to determine, there are no reports of its successful application in a case of fusiform aneurysm of the thoracic aorta. It seems desirable, therefore, to report the following case of a syphilitic aneurysm of the descending thoracic aorta that was successfully resected with restoration of normal blood flow by means of an aortic homograft.

REPORT OF A CASE

A 46-year-old white man was admitted to the Methodist Hospital on Dec. 31, 1952, complaining of lower back, left lower abdominal, and inguinal pain of three months duration. The pain began spontaneously, and at the outset occurred in episodes necessitating hospitalization on several occasions. For the previous few weeks and on admission to this hospital, the pain was constant, sharp, and severe and was partially relieved by lying on the left side. For adequate relief, however, opiates or meperidine (Demerol) was required as often as several times daily. Barium studies of the upper gastrointestinal tract and roentgenograms of the thoracolumbar spine made at the Hertzler Clinic in Halstead, Kan., were interpreted as showing an aneurysm of the terminal thoracic and proximal abdominal aorta producing erosion of the vertebral bodies at the level of the diaphragm. The patient gave a history of treated syphilis. A cholecystectomy had been done five years previously.

Physical examination revealed a well-developed, anxious man who appeared chronically ill. The pulse was regular and the blood pressure was 140/80 mm Hg. The heart was not enlarged, and there were no unusual sounds or murmurs. There was a well-healed subcostal incision on the right side of the

abdomen and no organs, masses, or hernias were palpable. Deep palpation in the left lower quadrant of the abdomen and over the left inguinal ligament elicited pain, but there was no paresthesia or hyperesthesia. Likewise palpation over the lumbosacral region was painful, but there was no specific localization. The findings on neurological examination, including tendon reflexes, were normal. Circulation in the lower extremities was good. Although the posterior tibial pulses were not palpable, the dorsalis pedis pulses were strong and the feet were warm.

Laboratory findings revealed an erythrocyte count of 5.17 million, hemoglobin level of 16.9 gm per 100 cc, and white blood cell count of 10,000, with 80% segmented neutrophils, 3% band forms, 14% lymphocytes, and 3% monocytes. The Kahn serologic test for syphilis was doubtful, and the Kolmer test was negative. The urine was dark amber with a specific gravity of 1.033 and an acid reaction. There were 35 mg of protein per 100 cc, a trace of sugar, and some acetone. There was no diacetic acid, and microscopic examination disclosed no abnormal findings. The blood urea nitrogen level was 14 mg per 100 cc, and the prothrombin activity was 100% of normal. An electrocardiogram revealed no abnormality.

Roentgenographic studies of the chest revealed the heart and lungs to be normal, but a large mass was visible behind the heart and arising at about the diaphragm. Lateral projections of the thoracolumbar vertebrae in the region of the mass revealed extensive erosion of the bodies of the 9th, 10th, 11th and 12th thoracic vertebrae and the first lumbar vertebra; they were most marked at the 11th and 12th thoracic levels (fig. 1). The intervertebral bodies were not eroded. Fluoroscopic copy revealed a pulsatile mass measuring about 20 by 15 by 15 cm behind the heart. The mass appeared to be continuous with the lower thoracic aorta and displaced the esophagus and stomach anteriorly and to the left. Results of an excretory urogram were normal.

On Jan. 3, 1953, with the patient under thiopental (Pentothal) anesthesia, aortography was performed by insertion

From the Department of Surgery, Baylor University College of Medicine and the Methodist Hospital.

The work in this case was aided by a grant from the Houston District Chapter of the Texas Heart Association.

1. Cooley D. A. and De Bakey M. E. Surgical Considerations of Intrathoracic Aneurysms of Aorta and Great Vessels. *Ann Surg.* 135: 660, 1952.

2. (a) Gross R. E. Treatment of Certain Aortic Coarctations by Homologous Grafts. *Report of 19 Cases.* *Ann Surg.* 124: 753, 1951. (b) Shumacker H. B. Jr. Coarctation and Aneurysms of Aorta. *Report of Case Treated by Excision and End-to-End Suture of Aorta.* *Ibid.* 127: 655, 1948. (c) Swan H., Maaske C., Johnson M. and Grover R. Arterial Homografts: Resection of Thoracic Aortic Aneurysm Using Stored Human Arterial Transplant. *Arch Surg.* 61: 732 (Oct.) 1950.

of a no 10 French woven catheter into the left brachial artery and threading of the catheter under fluoroscopic control into the midthoracic aorta. Then 30 cc of 70% iodopyracet (Diodrast) solution was injected rapidly, and a single film was exposed. The aorta and the extensive aneurysm were moderately opacified. The aneurysm was demonstrated to have a layer of clot on both sides, represented by a nonopacified rim

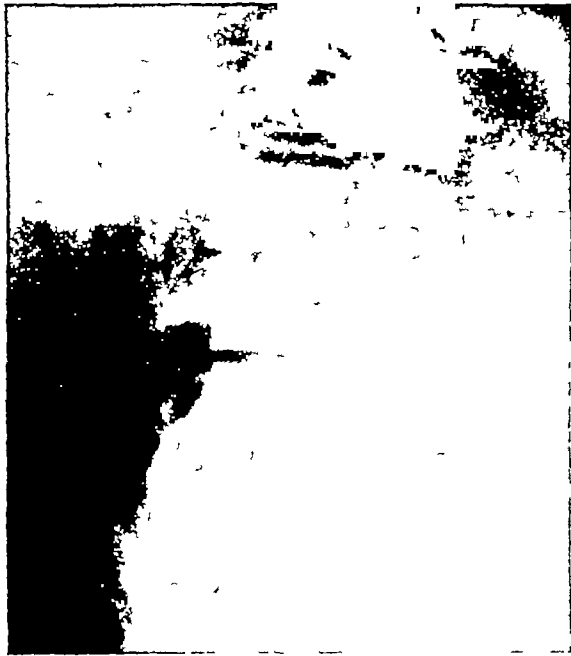


Fig 1—Lateral roentgenogram of the lower thoracic vertebrae showing extensive erosion of the vertebral bodies from the ninth thoracic to the first lumbar vertebra

of tissue. The aorta was displaced to the left by the aneurysm, which presented primarily on the right and posteriorly. Multiple intercostal arteries were visualized as well as branches of the celiac axis (splenic and hepatic arteries), both renal arteries, and the superior and inferior mesenteric arteries (fig 2).

Operation—On Jan 5, 1953, anesthesia was induced by ether administered by tracheal intubation, the patient was placed in a 45 degree right lateral position, and the pleural cavity was entered through the bed of a resected segment of the ninth rib (fig 3A). The lung was retracted forward, and the aneurysm was exposed. The lower thoracic aorta arched anteriorly on the proximal margin of the aneurysm, which appeared to be about 20 cm in length and 20 cm in its greatest diameter. It was firmly adherent to the vertebrae posteriorly. The mediastinal pleura was incised over the proximal aorta, and the aorta was encircled with an umbilical tape. In order to expose the distal portion of the aneurysm, the thoracotomy incision was extended obliquely across the upper abdomen, dividing the costal margin. The diaphragm was incised, and the esophageal and aortic hiatuses were opened. The spleen was removed to facilitate exposure. Inferiorly the aorta was encircled just distal to the celiac axis but proximal to the renal and superior mesenteric arteries. At this point the aorta was only adherent to but not involved in the aneurysm itself (fig 3B). Atraumatic arterial clamps were then used to occlude the proximal and distal aorta after injection of 10 mg of heparin solution, and the celiac axis was occluded separately (fig 3C). The aneurysm was dissected off adjacent structures anteriorly and partially excised in order to provide adequate space for the homograft.

An aortic homograft measuring approximately 15 cm in length was simultaneously prepared to bridge the defect. The graft had been originally obtained six days previously from

a 21 year old Negro man who had died of acute injuries. The graft was obtained under sterile conditions two hours after the donor died and was kept for 36 hours in sodium chloride solution containing 1 gm of streptomycin and one million units of penicillin. The graft was transferred to Gross's medium, to which no serum had been added, and stored at 4 C. By a continuous through-and-through suture of 4 0 arterial suture the graft was anastomosed to the proximal and distal ends of the aorta (fig 3C).

The blood pressure, which prior to aortic occlusion was 140/100 mm Hg, rose promptly to 200/100 after the occlusion. The pressure decreased to 160/100 during the 45 minute period that elapsed before the clamps were released after completion of the anastomosis. As the aortic clamps were released very slowly, the blood pressure dropped immediately to 80/60 mm Hg and remained at that level throughout the remainder of the operation although the patient's general condition appeared good. There was minimal bleeding from the lines of anastomosis, and after a few minutes this stopped completely. The remaining portion of the aneurysm and its contents were then removed and layers of thrombus in varying stages of organization were scooped out piecemeal, leaving the intact intervertebral cartilages protruding forward several centimeters above the eroded vertebral bodies. Because the graft was suspended across the area excavated by the aneurysm, a portion of the omentum was displaced into the thorax and sutured around the graft to protect it from the rather sharp intervertebral bodies posteriorly and to provide a vascular soft tissue support. The incision in the diaphragm was repaired with interrupted silk sutures, and the thoraco-abdominal incision was similarly closed, leaving an intercostal catheter for underwater sealed drainage. During the procedure, which lasted 4 hours and 40 minutes, the patient received 1,500 cc of whole blood by transfusion.

In the first 24 hour period after surgery the urinary output per Foley catheter was 900 cc. Renal function remained good throughout the patient's hospitalization. Atelectasis of the right upper lobe was demonstrated by roentgenogram on the second day after operation and this was successfully treated by tracheal aspiration and induced coughing. The postoperative course was otherwise uneventful. The patient became ambulatory on the sixth day after operation, and the sutures

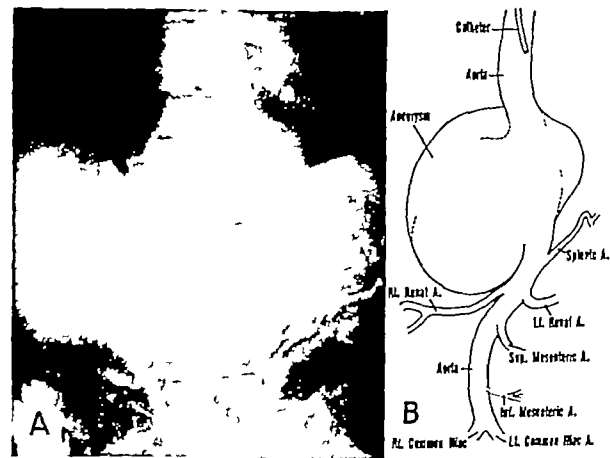


Fig 2—A roentgenogram showing aneurysm of descending thoracic aorta. B diagrammatic representation of the aortic tributaries and the involved structures.

were removed on the seventh day. The previous complaint of severe back and left lower abdominal pain was completely relieved, and the patient required no further analgesics. There were no manifestations of cord damage, and the circulation in his extremities appeared much improved. His appetite and spirits were excellent at the time of discharge from the hospital on Jan 18, 1953, 13 days after operation, and he resumed his duties as county sheriff approximately one month later.

COMMENT

The only other case in which a somewhat similar procedure was employed was recently reported by Lam and Aram.³ Their patient also had a large syphilitic fusiform aneurysm of the descending thoracic aorta, but the procedure employed by them differed from that used by us in that the aneurysmal sac was left in situ and an aortic homograft was used to bypass it. The patient died almost three months later from a mediastinal abscess in the aneurysmal sac and secondary hemorrhage. The likely occurrence of such a complication from ischemic necrosis of the sac consequent to its devascularization was pointed out by Tuffier⁴ many years ago and emphasizes the importance of extirpation of the aneurysm under these circumstances. This was forcefully impressed upon us by our experience with two previous cases in which fatal hemorrhage occurred from the aneurysmal sac that was not extirpated.¹

Another important technical consideration in the performance of this procedure is concerned with the potential ischemic hazards of arrest of circulation in the aorta distal to the point of occlusion immediately above the aneurysm, particularly on the spinal cord and the kidneys. The problem here differs from that in coarctation in which a well-developed collateral circulation already exists. To avoid this danger Lam and Aram³ used a Lucite (polymerized methyl methacrylate) tube over which the homograft was placed to permit blood flow between the two ends of the aorta during the anastomosis. In this way it was hoped to minimize the period of arrest of the circulation, the actual time of occlusion in their case being 24 minutes on one occasion and 15 minutes on another. In spite of this, however, their patient manifested some cord damage, with temporary partial paraplegia. In light of these findings our case is remarkable in that there were no postoperative manifestations of ischemic changes in the cord, the kidneys, or other organs, in spite of the fact that the aorta was occluded for a period of 45 consecutive minutes during which the anastomosis was performed. This would suggest that, at least under some circumstances such as these, the aneurysm may stimulate the development of some collateral circulation or may gradually create in the tissues supplied by this part of the aorta an increased tolerance to a diminished blood supply. The operation of these factors, individually or in combination, may thus be sufficiently effective to maintain viability during the period of occlusion of the aorta required for the anastomosis. Although it is not possible to draw conclusions from a single case, the fact remains that the 45 minute period of occlusion was well tolerated by our patient. This is a matter of considerable importance, however, since the feasibility as well as the facility of the procedure is to a great extent dependent upon it.

In this connection there are several technical features of the procedure that deserve consideration. The first is concerned with minimizing the period of occlusion by leaving the actual extirpation of the aneurysm until after

completion of the anastomosis of the graft and release of the occluding clamps. While it may be necessary to excise a part of the sac in order to provide adequate space for placement of the graft, the major portion of the aneurysm and its contents may be removed after restoration of blood flow through the graft. The second point is concerned with the avoidance of thrombosis in the vascular bed distal to the point of occlusion as a possible consequence of the slowing down of the circulation in these vessels. With this objective in mind, a small amount of heparin was injected into the aorta just prior to the application of the occluding clamp. Finally the method of anastomosis employed in our case consisted of a simple continuous through-and-through suture rather than the mattress suture placed so as to fix the intima in an everted

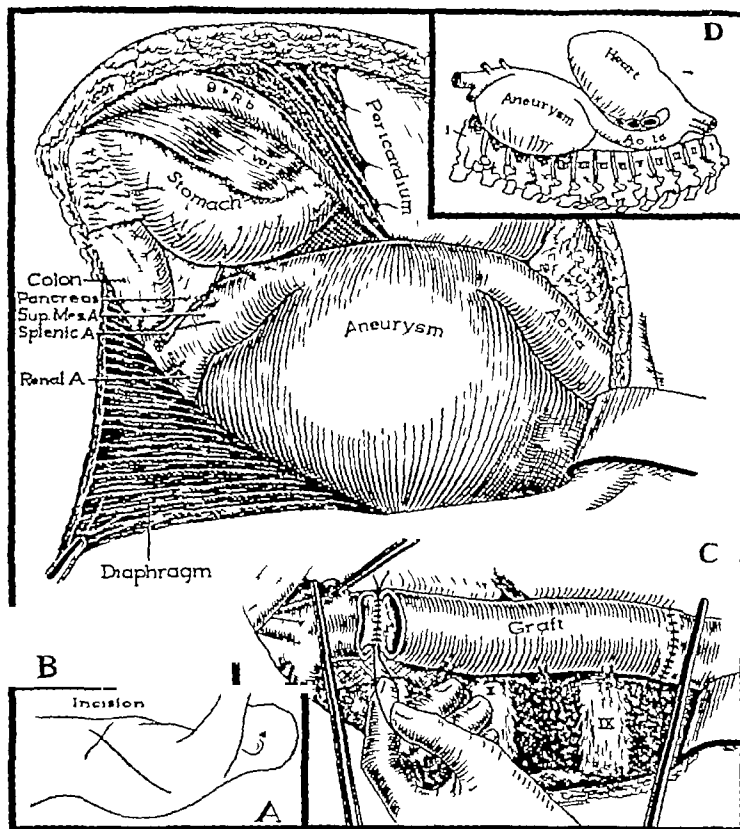


Fig 3—A position of patient and placement of incision. B, anatomical relationships of the aneurysm to the thoracic and abdominal viscera. C, method of occlusion of proximal and distal aorta during aneurysmectomy and insertion of the aortic homograft. The anastomosis was performed by a continuous through and through suture. D, representation of the aneurysm showing the relative position and size of the sac and eroded vertebral bodies.

position. From our experience with resection and replacement by aortic homografts of abdominal aortic aneurysms, we believe that this method of anastomosis provides equally satisfactory results while at the same time facilitating the performance of the procedure.⁵

3 Lam C. R. and Aram H. H. Resection of Descending Thoracic Aorta for Aneurysm. Report of Use of Homograft in Case and an Experimental Study. *Ann. Surg.* 134: 743 1951.

4 Tuffier T. Intervention chirurgicale directe pour un anévrysme de la crosse de l'aorte. *Ligature du sac*. *Presse méd.* 1: 267 1902. also *Bull. Acad. de méd. Paris* 85 586 1921.

5 De Bakey M. and Cooley D. A. Surgical Treatment of Aneurysms of Abdominal Aorta by Resection and Restoration of Continuity with Homograft. *Surg. Gynec. & Obst.* to be published.

It is, of course, too early to determine the ultimate results of this method of surgical treatment of these aneurysms. On the basis, however, of experimental observations on aortic homografts and the clinical results obtained by their use in coarctation,⁶ there is reason to believe it provides a better approach to the problem than was hitherto possible. Its ultimate clinical value, as well as certain technical considerations concerned with its performance and the most desirable material for bridging the defect, must await further observation and experience.

SUMMARY

A case is reported of a 46-year-old white man with a huge, probably syphilitic, aneurysm of the descending thoracic aorta producing extensive erosion of the vertebral bodies and incapacitating symptoms. The aneurysm along with the involved segment of aorta was successfully

resected with restoration of normal blood flow by means of an aortic homograft. Although the aorta was occluded for a period of 45 minutes during the anastomosis, there were no residual manifestations of ischemic changes in the spinal cord, the kidneys, or other organs.

ADDENDUM

According to a recent letter, dated May 2, 1953, from his local physician, the patient has continued to show progressive improvement with complete relief of symptoms. He has gained 40 lb (18.2 kg) since his discharge from the hospital and has returned to work apparently completely recovered.

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6 Gross R E, Bill A H Jr and Pierce E C II. Methods for Preservation and Transplantation of Arterial Grafts. Observations on Arterial Grafts in Dogs. Report of Transplantation of Preserved Arterial Grafts in 9 Human Cases. Surg Gynec & Obst 88:689, 1949. Gross.^{7a}

ROENTGENOGRAPHIC DIAGNOSIS OF CALCIFICATION IN CARCINOMA OF THE BREAST

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and

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Abnormal calcification of tissue has attracted study from the earliest days of roentgenology, but, so far, calcifying processes in the breast have received little attention. Not until 1949 did an observation appear dealing with the diagnostic importance of punctate calcification in carcinoma of the breast. The significance of this report by Leborgne¹ has become evident to us after comparative x-ray and histological examination of the breasts of 425 patients.

The use of the whole breast slicer technique of Ingleby² and of routine histological examinations have served to check accurately the roentgenographic findings, which are now based on recently improved techniques.³ We suspect that we may have overlooked many cases of carcinomatous calcification in the films made by older techniques. The present method of examination, patterned after that of Leborgne,¹ takes advantage of fine grain, non-screen films and the small focal spot of the latest model, rotating anode, x-ray tube. Without this equipment, it is impossible to delineate the fine structural details and calcification of malignant processes in the breast.

ROENTGENOGRAPHIC APPEARANCE OF CALCIFICATION

The calcium deposits in malignant breast lesions are punctate, but the margins are angular rather than circular or curvilinear. This gives the deposits a crystalline or

granular appearance. Their number and concentration may vary greatly without apparent relationship to the size of the malignant lesion. They may aggregate as a small cluster in the primary malignant lesion itself, or they may be dispersed partially in the surrounding tissues. Rarely, calcium deposits may permeate the breast widely, and this may occur even in the absence of a primary, isolated malignant focus. This poses the hope that some occult carcinomas⁴ may now be diagnosed before symptoms appear or a biopsy is made.

Leborgne¹ believes that small, circumscribed deposits of these granular calcified particles are likely to occur in scirrhous carcinoma, whereas widespread disseminations occur in occult canalicular or comedocarcinoma. These conclusions seem to be substantially valid as judged by our experience so far. Thus the finding of widespread punctate calcium deposits, even in the absence of a palpable tumor or other signs of neoplasm, would indicate the necessity for surgical intervention. Routine use of the x-ray examination as part of diagnostic breast studies, even if only for locating calcium deposits, would thus seem foresighted.

Familiarity with the appearance of these sand-like calcium deposits in malignant breast lesions makes differentiation from other calcifying processes easy (fig 1 and 2). But another form of calcification that also may occur in malignant lesions, as well as elsewhere in the breast, is seen in small sclerotic arteries. These vessels normally are seen in the subcutaneous fat layer and in the breast proper if there is sufficient infiltration of the fat. Calcification in these small vessels may be recognized by the two parallel rows of calcification corresponding to the vessel walls. A calcified vascular pattern is, therefore, quite different from the irregular clusters of calcified particles in malignant tissue.

From the departments of radiology and research pathology, Albert Einstein Medical Center (Northern Division), Philadelphia.

¹ Leborgne R. Diagnóstico de los tumores de la mamma por la radiografía simple. Apartado Del Bol Soc cir Uruguay 20:407, 1949. Leborgne R. Diagnosis of Tumors of the Breast by Simple Roentgenography. Calcifications in Carcinoma. Am J Roentgenol 65:1, 1951.

² Ingleby H., and Holly C. A Method for the Preparation of Serial Slices of the Breast. J Tech Methods 19:93, 1939.

³ Gershon-Cohen J. and Ingleby H. Carcinoma of the Breast. Roentgen Techniques and Diagnostic Criteria. Radiology 60:68, 1953.

⁴ Fitts W T Jr and Horn R T Jr. Occult Carcinoma of the Breast. J A M A 147:1429 (Dec 8) 1951.

Calcification due to phleboliths is not easily confused with that in malignant tumors. Phleboliths usually are few in number and are sparsely scattered along the course of the veins, which are seen readily in x-ray films of the breast. Furthermore, phleboliths are larger and smoother in outline than the punctate deposits of malignant processes. Fibroadenomas of the breast often contain calcified deposits. These are flaky, lamellar, or otherwise bizarre in shape and are always localized to the tumor, either inside or in the peripheral encapsulation. Rarely, calcification in ducts, cysts, or periductal tissue may occur after suppurative infection. These calcified deposits may be localized or disseminated and may vary in size and shape. Unlike the clusters in malignant processes, these deposits adhere to the trabecular architecture of the breast.

COMMENT

Abnormal calcification occurs in tissues in which vitality is reduced or absent, usually as the result of inflammation. Fatty degeneration usually precedes calcification. The roentgenologist, like the pathologist, is familiar with calcification in arteriosclerosis, valvular heart disease, pericarditis, old thrombi, and healed tuberculous lesions. Abnormal calcification may also occur in masses of excretion and secretion, as in tonsillar crypts, in the bronchi, or in ducts of various glands. The universal presence of phosphorus in nuclei, the existence of fatty acids in cells and tissue, and the frequent occurrence of fatty degeneration before calcification, set the stage for the formation of calcium soaps, proteinates, phosphates, and carbonates. Concretions that form in areas of long-standing inflammation are usually lamellar or otherwise deposited in fibrous tissue, while the punctate, psammomatous or sand-like deposits of some breast carcinomas seem related more to the finer structures of the parenchyma. The pathologist is likely to give only passing attention to these secondary changes, but the

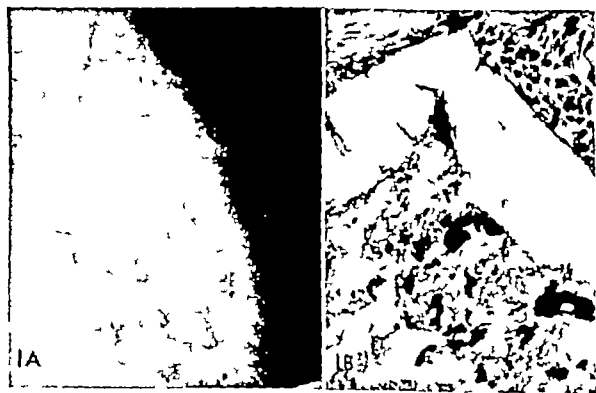


Fig 1—A roentgenogram of malignant breast infiltrations with granular calcified deposits. B photomicrograph of calcified particles in the same breast.

arresting over-all pattern caused by these changes has diagnostic possibilities for the roentgenologist.

The peculiarities of these calcified deposits may be related merely to the growth characteristics of some breast cancers. The slow growth of comedocarcinoma and some other canalicular neoplasms may lead to degenerative changes eventually resulting in calcification.

Other slowly growing tumors, such as the pearls of epidermoid carcinoma, atrophic portions of rodent ulcer, and old necrosed portions of glandular carcinoma, also often contain much calcium. In psammocarcinoma of the ovary, kidney, or parotid gland, many dense, calcified deposits derived from epithelial concretions may be

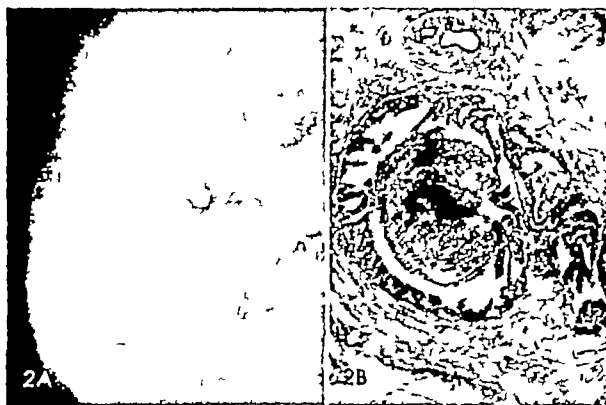


Fig 2—A roentgenogram of diffuse occult duct carcinoma with scattered calcified deposits. B photomicrograph of a calcified focus in necrotic debris in the same breast.

found. But the deposits in these neoplasms differ in size and shape from those seen in the inspissated detritus of the distended ducts of comedocarcinoma and in some other forms of duct carcinoma of the breast. While the calcified deposits in acanthoma are not like those of breast cancer, the slow growth of calcifying acanthoma is similar to that of calcifying malignant breast lesions.

SUMMARY

Granular or psammomatous deposits of calcium sometimes occur in malignant breast lesions. These deposits may be clustered within a single lesion or they may be dispersed into the surrounding structures. Rarely, these deposits may be found diffusely permeating a breast in the absence of a primary focus and are thus the only indication of an otherwise occult malignant infiltration. Thus, routine x-ray examination would appear to be warranted in studies of breast disease.

York and Tabor roads (Dr Gershon Cohen)

Polio myelitis—Large epidemics of paralytic poliomyelitis seem to be a reflection of the improved living and sanitary conditions of the countries which suffer them. In most parts of the world poliomyelitis epidemics are small or unimportant, and paralysis, when it occurs, is almost limited to children under 5 years old. As the virus is liberally distributed, nearly everybody comes in contact with it before that age, and progressively acquires enough resistance to make a paralytic illness unlikely. On the other hand, in a person not protected by previous exposure to the virus, the likelihood of paralysis rises during childhood, being lowest in infancy and reaching a peak in early adult life. As research on the virus has been almost exclusively carried out in countries where the disease is epidemic rather than endemic, we have come to think of epidemics as the natural host virus relationship. But the reverse appears to be actually the case. Instead of coming recently to prey on man, the virus seems rather to have lived in more or less harmonious relationship with us for centuries, and it is we who, by altering our living conditions, have upset the balance.—P. N. Meenan, M.D., *New Concepts of Poliomyelitis*, *The Lancet*, April 18 1953.

EXPERIENCES WITH CARDIOPERICARDIOPEXY IN THE TREATMENT OF CORONARY DISEASE

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and

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For more than 13 years we have been treating a selected group of coronary patients with one particular operation.¹ This operation was devised and adopted as a result of animal experiments, in which it gave complete protection to the animals following the ligation of a main coronary artery, the same ligation without the operation resulted in a mortality of 50%. We believe that this operation, known as cardiopexy, has a definite value, and we now present our experience with 57 of these operations. In discussing coronary disease, we are very much aware of the divergence of opinions expressed by various groups studying this problem, and even of the various persons in each group, however, it is generally accepted that angina, coronary insufficiency, and coronary occlusions are all varying degrees of a common condition, namely, myocardial ischemia.

The enormity of the problem of coronary disease is evident in mortality statistics. The number of persons who died in 1950 from cardiovascular diseases was 745,000. Each day's total was 2,040, and every hour's total was 85, this is more than one every minute and more than from any other cause. Cardiovascular diseases account for over 50% of the total death rate in the United States. Coronary artery disease accounts for one-half of these deaths, or 22% of the total death rate. There has been a general increase in coronary deaths of 114% over a period of seven years, and the increase among physicians in this same time was 240% (Life Extension Institute). Coronary disease appears to be an occupational hazard of the medical profession² and is the only major disease in which the mortality each year has increased over the mortality of the previous year for the past 10 years, it is now at an all-time high, 78.2 per 100,000 (Metropolitan Life Insurance Company).

Of the patients who survive their first coronary artery occlusion, about two-fifths make a complete functional recovery.³ Some of the remaining three-fifths, however, suffer from angina, which increases in frequency and severity and causes a progressive restriction in their physical activities. Some of these patients are partially, and others are completely, incapacitated by the anginal pains and are actually coronary cripples. The medical treatment for this specific group of patients is insufficient and very unsatisfactory. It consists principally of symptomatic relief, dietary regimens, and psychotherapy. We are

not speaking now of every coronary patient but refer to that particular group of patients who are incapacitated. Very few, if any, of these patients are ever rehabilitated to the point where they are relieved of their angina or can return to their former occupations.

METHOD

It is with this same group of cripples that we have been working for many years, and we believe that we have a satisfactory method for the surgical rehabilitation of these patients. The operative procedure is known as cardiopercardiopexy, and the method consists of converting the ischemic myocardium of coronary disease into a hyperemic myocardium. This change from hypoxemia to hyperemia of the myocardium overcomes the mechanical effect and clinical symptoms of the disease. It is accomplished by spreading sterile powdered magnesium silicate over the myocardium inside the pericardial sac. This substance is known as U S P talc, however, it is not the ordinary commercial variety of talcum powder but is a form of powdered silica. When the talc is placed inside the pericardial sac, it acts as an irritant and causes three principal reactions: a talc granuloma is produced that involves the superficial surface of the myocardium, it stimulates the development of interarterial coronary anastomoses, and it produces adhesive pericarditis.

After the introduction of the magnesium silicate inside the pericardial sac, an acute inflammatory reaction takes place that involves all of the structures in the mediastinum, including the pleura, pericardium, epicardium and adjacent myocardium, the esophagus, and lungs. One of the characteristics of this acute reaction is the marked hyperemia of the myocardium that occurs within a very few hours. As a result of this reaction and hyperemia, there is a dilatation of the anastomosing blood vessels that are already present between the main coronary arteries and, also, a stimulation in the formation of new intercoronary blood vessels. As the acute reaction subsides, it is followed by a chronic reaction—a foreign body granuloma that develops on the surface of the myocardium, this is characterized by hyperemia and increased vascularity. This chronic inflammatory reaction may last for many years, since the powder particles remain fixed within the adherent tissues of the myocardium and pericardium for an indefinite period of time. Adhesive pericarditis occurs as a result of the inflammation, but constrictive pericarditis does not take place, nor do any other adverse complications occur as a result of the adhesions. The hyperemia of the myocardium is further enhanced by the free communication of new blood vessels between the mediastinal structures and the adherent pericardium and myocardium.

In coronary disease a constant attempt is made by the myocardium to produce new collateral coronary anastomoses.⁴ If the necessary length of time is given, or a suf-

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1 Thompson S A and Ralsbeck M J: Cardio-Pericardiopexy: Surgical Treatment of Coronary Arterial Disease by Establishment of Adhesive Pericarditis. *Ann Int Med* 16: 495 (March) 1942.

2 Dickinson F G and Welker E L: Leading Causes of Death Among Physicians. *J A M A* 139: 1129 (April 23) 1949.

3 Master A M and Jaffe H L: Complete Functional Recovery After Coronary Occlusion and Insufficiency. *J A M A* 147: 1721 (Dec 29) 1951.

4 Blumgart H L, Schlesinger M J and Zoll P M: Angina Pectoris, Coronary Failure and Acute Myocardial Infarction: Role of Coronary Occlusion and Collateral Circulation. *J A M A* 116: 91 (Jan 11) 1941.

ficient stimulus exists, the rate at which these new collaterals are formed may become equal to the rate of occlusion produced by the disease process. We believe the irritation and hyperemia of the foreign body (talc) reaction is a sufficient stimulus to the myocardium for the development of new interarterial communications. Even though the hyperemia of the acute reaction subsides and some of the immediate stimulus is thereby withdrawn, the increased collateral formation, once it is started, may continue to form and function for an indefinite period of time, even without further stimulation. It would appear from these reactions that the mechanical effects and clinical symptoms of myocardial ischemia can be mitigated by cardiopericardiopexy, regardless of the underlying cause of the myocardial ischemia.

The possibility has occurred to us that the granulation tissue might eventually change into scar tissue and, with the passage of time, become avascular and thus afford no collateral circulation. We do not believe this occurs. We have slides of autopsy specimens from patients who had been operated on and subsequently died from within a few days up to 10 years after the operation. The characteristic features of all of the specimens are the granulomas, which show marked vascularity and the presence of the talc granules. These autopsy specimens definitely prove that the granulomas remain vascular for at least as long as 10 years.



Fig. 1—Early lesion characterized by serous nonsuppurative pericarditis and marked hyperemia ($\times 74$)

Occasionally the lesion that follows the operation has been compared to and described as similar to the lesions seen in constrictive pericarditis. Such a comparison is erroneous and far from the actual facts. In constrictive pericarditis the pericardium may or may not be adherent

but is usually thickened and is avascular. When the pericardium is removed from the myocardium, little or no bleeding occurs, but, after cardiopericardiopexy, the pericardium is always adherent, has never been found to constrict the myocardium in any degree, and is exces-



Fig. 2—Fibrous adhesive granulomatous pericarditis with persistent uniformity and vascularization. A the abrupt line of the pericardium and its union by delicate fibrous connective tissue stroma to the myocardium without encroaching on the latter; B granulomatous pericarditis; and C large blood vessels within the inflamed pericardium ($\times 46$)

sively vascular and hyperemic. When the pericardium is separated from the myocardium, it is done with great difficulty, as no line of cleavage can be found and bleeding occurs from both pericardial and myocardial surfaces. This condition was found to exist not only in the animal experiments but in one patient who was examined four and one-half years after an operation. Also the autopsy studies, up to almost 10 years after cardiopericardiopexy, show the same lesion still existing.

In the histopathological study of the autopsy cases following the introduction of U S P talc, it is evident that a definite uniform acute inflammatory lesion of the parietal and visceral pericardium is produced. This lesion (fig 1) in the early stage is characterized by an acute nonsuppurative serous and serofibrinous pericarditis, actively stimulating marked hyperemia. The lesion consists of a diffuse infiltration of lymphocytes and monocytes, strikingly confined to the surface of the pericardial membranes. This activity with its maximum reaction persists for about three days.

After the third day of inflammatory activity a marked transition takes place with the appearance of eosinophilic leukocytes, plasma cells, and the deposition of fibrin. Gradual development of multinucleated giant cells in a loose fibrous stroma becomes apparent at about 14 days after surgery, with persistence of the talc crystals. This uniform granulomatous lesion abruptly terminates at the surfaces of the pericardium (fig 2). The junctional union consists of a loose fibrous connective tissue stroma permitting free motion of the myocardium. This active pericarditis is associated with an extracardiac inflammatory reaction in the adjacent viscera, such as lungs, mediastinum, and diaphragm, resulting in anastomosis of extracardiac vessels with the intercoronary vessels through the bridge formed by the adherent granulomatous pericardium (fig 3), housing multiple blood vessels, the inter-

nal diameter of which is far above the so-called critical 40μ .⁵ The striking features of the lesion, when fully produced, are the persistence, uniformity, and stability, which do not deviate with a lapse of many years following surgery (fig 4). A report of the pathology in combina-

face of the myocardium. The tissues are then closed in anatomic layers without drainage. It is a simple operation and does not, of itself, carry any great risk.

RESULTS

In order to fully determine the effects of the operation, no patient has been included in this series who has been operated on less than one year previously. The total number of operations was 57. Deaths attributed to the operation and all hospital deaths after the operation numbered seven, giving an operative and hospital mortality of slightly more than 12%. Of the 50 remaining patients who have been followed up to the present time, or the time of their death, 37 were men and 13 were women. This is a ratio of slightly less than three to one. The youngest patient was a woman of 35 (the youngest man was 36), and the oldest patient was also a woman, aged 68 (the oldest man was 64). The average age of the entire group was 51, and the majority of patients (23) were in the sixth decade. Three were in the fourth decade, 19 in the fifth, and 5 in the seventh. Thirty-three of the patients are living at the present time.

The duration of the symptoms before the operation has been recorded from the patients' histories. The shortest duration of symptoms before the operation was three months and the longest was 15 years, giving an average of $3\frac{1}{2}$ years. There is a sharp difference, however, in the



Fig 3.—Persistent uniformity of granulomatous pericarditis in a patient 10 years after cardiopericardioplexy. A, granulomatous pericarditis and B, large vascular channels leaving the pericardium and extending by branches into the interstitia of the myocardium ($\times 68$).

tion with visual dissection and roentgenographic studies will be published in detail in an article to follow.

In the past we have severely limited the indications for operation and accepted only those who had more or less critical forms of coronary disease with a marked degree of disability.⁶ In view of the results that we have obtained, we now believe that with more liberal indications the operation can be successfully applied to a much larger group of patients. Since the rationale of the operation is to produce a myocardial hyperemia, it could be used to counteract the effects of those lesions that produce myocardial ischemia. The majority of lesions producing myocardial ischemia fall into three groups, namely, coronary artery disease, hypertension, and rheumatic disease. Together they are responsible for about three-fourths of all cardiovascular deaths.

Because of a previous description,¹ we will not now describe the operation more than to say that it consists of removing a small piece of the fifth cartilage on the left side of the chest. The pericardial sac is opened, and the magnesium silicate powder is spread widely over the sur-



Fig 4.—Polarized photograph of figure 3 showing persistence of talc crystals within the areas of granulomatous pericarditis in a patient 10 years after cardiopericardioplexy.

duration of symptoms of the patients who are still living and in those who have died. The living patients had had their symptoms for an average of two and three-quarters years, while the patients who have died had symptoms for an average of four and one-half years before operation. In 37 patients angina was the first symptom, and coronary

5 Zoll P M, Wessler S and Schlesinger M J. Interarterial Coronary Anastomoses in the Human Heart with Particular Reference to Anemia and Relative Cardiac Anoxia. *Circulation* 4: 797 (Dec) 1951.

6 Thompson S A. and Raisbeck M J. Surgical Rehabilitation of Coronary Cripple. *Ann Int Med* 31: 1010 (Dec) 1949.

occlusion was the first symptom in 13. Three of the patients had congestive failure, and seven had hypertensive disease.

The shortest length of life after the operation was two months and the longest 13¾ years, with an average of about 5 years, however, 33 of the patients are still living, so this average is subject to an increase from time to time. Of the 17 patients who were followed up to the time of their death, the average duration of symptoms before operation was four and one-half years and the average life span after operation was five years. Thus the span of life of these patients from the first symptom was nine and one-half years. This compares very favorably with the span of life of the average coronary patient who is not operated on. Statistics on these patients vary with each group reported, but averaging all the groups gives a life span of four to five years from the onset of the first symptom.

While our group of patients is small and no definite conclusions should be drawn from a small group, we nevertheless believe that the span of life for these patients has been markedly increased by the operation for two reasons. First, the average length of life after appearance of symptoms for coronary patients not operated on is four to five years, and that for our group of patients is nine and one-half years. Second, the large majority of patients operated on were in a terminal state and were completely incapacitated, having experienced one or more occlusions, and very few of them could be presumed to continue life for any length of time. They had already lived for four and one-half years and were thus at the end of the average life span for coronary patients, yet they continued to live after the operation for an additional average of five years.

Because there are no satisfactory objective tests by which we can measure the postoperative improvement or prognosis, it has been necessary for us to rely on subjective tests. There are four tests that we use to determine the postoperative benefits: first, the decrease in the amount of anginal pain, second, the increase in the exercise tolerance, third, the improved ability to attend to daily needs, and fourth, a return to the former or some other gainful occupation. Using these four tests as a guide, we have divided the patients into three groups. The first group, with less than 50% improvement, we classify as having poor results. The second, with 50 to 75% improvement, we classify as having moderate results. The third group, with more than 75% improvement, we classify as having marked results.

The first patient who had had a cardiopericardiopexy is still alive and in excellent condition almost 14 years later. Of the 50 patients followed, 5, or 10%, have received less than 50% improvement and are classed as poor results. The remaining 45 patients, or 90%, have received more than 50% improvement. Twenty of these patients, or 40%, have received more than 75% improvement as measured by the four tests and are classed as markedly improved. Some of the patients in this last group are subjectively normal and have no angina and no decrease in the exercise tolerance. For a group of patients who were medical failures and almost all of whom

were completely incapacitated, this operation has produced very satisfactory results, which we could not duplicate with other measures.

CONCLUSIONS

In conclusion, it should be emphasized that we have operated on a group of patients almost all of whom were in a terminal state, were medical failures, and were completely incapacitated. They had everything to gain and nothing to lose from the operation, and very few of them were satisfactory surgical risks. In spite of these handicaps, we have been able, by means of this operation, to rehabilitate these patients so that 90% are more than 50% improved and 40% are more than 75% improved. In addition to their physical improvement, the patients who have since died lived an average length of life after the operation of five years, giving them an average life span of nine and one-half years from the onset of the first symptoms. We do not believe these patients would have survived this length of time without the operation.

850 Park Ave (Dr Thompson)

Anemia of Infection.—The anemia associated with infection is one of the most commonly encountered forms of anemia, if not the most common of all. With the newer means for controlling infections, it may be anticipated that the incidence of the anemia of infection will be greatly reduced. Already the incidence of such diseases as empyema, lung abscess, and chronic osteomyelitis has been lowered significantly.

The factors which determine whether or not anemia will develop in a patient with an infection deserve careful analysis.

No information is available whether the location of the infection (in bones, lungs, liver, subcutaneous tissue, or else where) is of any importance in the development of the anemia. Whether one type of organism, e. g., streptococcus, pneumococcus, aerobacter, is more likely to produce anemia than another is not known. James et al., in a study of patients with various suppurative lesions, presented evidence that in those patients whose infections were due to several different organisms, the greater the number of different genera of organisms, the lower were the hemoglobin levels. It is our impression that the severity of the infection, as indicated by the severity of the accompanying systemic reaction, is probably the most important factor in determining whether or not anemia will develop, provided the infection persists for a sufficiently long period of time. Infections of mild degree are generally not accompanied by anemia. Infections of less than a month's duration as a rule are not accompanied by a significant anemia. Since the normal life span of erythrocytes is approximately 4 months, this would be expected if it is admitted that the anemia is due to decreased production of erythrocytes by the bone marrow.

The anemia of infection occurs commonly in infants and children [but] no age group is spared. It is generally assumed that more severe and prolonged infections are likely to develop in inadequately nourished individuals.

The anemia associated with chronic infection, as indicated by the quantity of hemoglobin per unit volume of blood, is generally mild in degree. A severe anemia is so rare that its presence should make one suspect the presence of another cause for anemia, such as renal disease, iron deficiency, or increased blood destruction.—G. E. Cartwright, M.D., and M. M. Wintrobe, M.D., *The Anemia of Infection*, in "Advances in Internal Medicine," Chicago, The Year Book Publishers, Inc., 1952, vol. 5, p. 165.

HYPERCHOLESTEREMIA

EFFECT ON CHOLESTEROL METABOLISM OF A POLYSORBATE 80 CHOLINE INOSITOL COMPLEX (MONICHOI)

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and

Murray M. Levites, M D , Bronx, N Y

The demonstration by Anitschkow¹ that cholesterol is the biochemical factor responsible for the experimental production of atherosclerosis marked the beginning of modern experimental and clinical investigation into the cause, prevention, and treatment of atherosclerosis. The extent and variety of studies initiated by those original findings almost half a century ago is evidenced by the profuse bibliography appended to any of the recent reviews of the subject. Although the observations noted in this mass of reports are often contradictory and controls adequate to allow for correlation between different studies has been lacking, the general idea is well established that there is an important relationship between the concentration of cholesterol in the blood plasma and the development of atherosclerosis. Recent studies, notably those by Kellner and his associates,² stressed the importance of the physicochemical phenomenon associated with the maintenance of cholesterol and serum lipids in a stable emulsion.

The present paper has a two-fold purpose: (1) to evaluate the significance of elevated serum cholesterol levels in the general medical population of a large hospital and (2) to give a preliminary report on the clinical use of a chemical complex that, through its effect on the serum lipid emulsion, seems to open new channels for the investigation of the physiological role of cholesterol.

SERUM CHOLESTEROL LEVELS IN A HOSPITAL POPULATION

The first portion of this study is concerned with a survey of the serum cholesterol levels in 960 consecutive patients admitted to the medical services of the Fordham Hospital. Blood was drawn for serum cholesterol determinations from all patients within 72 hours after admission, except from those who were near death and diabetic patients who showed evidence of instability in their diabetic status. Patients who were seriously ill were included

in the study on their recovery, and patients with poorly controlled diabetes were included in the study after control was established.

All chemical determinations were performed by the same technician in the Metabolic Research Laboratory of Fordham Hospital. Serum cholesterol levels were determined by a modification of the Bloor method as reported by Abell.³ The values ranged from 44 mg per 100 ml in a patient with extensive tuberculosis to 1,334 mg per 100 ml in a patient with myxedema. When the patients studied were discharged from the hospital, the final diagnosis was added to the laboratory record. Patients having a serum cholesterol level of 300 mg per 100 ml or over were considered hypercholesteremic for the purposes of this study. The following tabulation shows the diagnoses established in the 960 patients studied.

	No	%
Cardiovascular disease	572	59.57
Diabetes	110	11.46
Pneumonia	107	11.15
Arthritis	9	0.94
Carcinoma of the lung	6	0.63
Cholelithiasis with obstruction	8	0.81
Gout	3	0.31
Hypothyroidism	2	0.21
Other	148	15.43
Total	960	100

Note that 59.6% of the patients were discharged from the hospital with a diagnosis of cardiovascular disease. This group plus the patients discharged with a diagnosis of diabetes accounted for 71% of the hospital admissions.

One hundred thirty-one (13.7%) of the 960 patients studied had serum cholesterol levels above 300 mg, ranging from 300 mg to 1,334 mg per 100 ml. The following tabulation shows the incidence of hypercholesteremia in relation to diagnosis.

	Patients with Hypercholesteremia	
	No	%
Cardiovascular disease	91	69.46
Diabetes	27	20.77
Pneumonia	2	1.54
Arthritis	3	2.03
Carcinoma of the lung	1	0.77
Cholelithiasis with obstruction	8	6.03
Gout	1	0.77
Hypothyroidism	2	1.54
Other	1	0.77
Total	131	99.68

Note that almost 70% of the patients with hypercholesteremia are found in the cardiovascular group. Addition of patients with diabetes and associated hypercholesteremia bring this number up to 90% of the total number of patients with hypercholesteremia. The patients in both groups account for 71% of the total number of patients studied. Table 1 shows the sex distribution and

This study was supported by a grant from Ives-Cameron Company Inc. New York.

Because of space limitations, tables 3, 7, 8, and 9 have been omitted from *THE JOURNAL* and will appear in the authors' reprints.

Five cubic centimeters of Monichol contains 500 mg of polysorbate 80, 500 mg of choline dihydrogen citrate and 250 mg of inositol.

The Monichol used was supplied by Mr. Michael Maiese, supervisor of research, Ives-Cameron Company Inc., who cooperated in this study.

From the Metabolic Research Laboratory, the Department of Metabolism, Endocrinology and Allergy, and the Department of Internal Medicine, Fordham Hospital, New York (Dr. Blaise Pasquarelli, Director of Medicine).

1. Anitschkow N. Über die Atherosklerose der Aorta beim Kaninchen und über deren Entstehungsbedingungen. *Beitr. path. Anat.* 59: 306, 1914. *Experimental Arteriosclerosis in Animals*. In Cowdry E. V. *Arteriosclerosis Survey of the Problem*. New York: The Macmillan Company, 1933, chap. 10.

2. Kellner A., Correll J. W. and Ladd A. T. Influence of Intravenously Administered Surface Active Agents on Development of Experimental Atherosclerosis in Rabbits. *J. Exper. Med.* 93: 385, 1951.

3. Abell L. L., Levy B. B., Brodie B. B. and Kendall F. E. Simplified Method for Estimation of Total Cholesterol in Serum and Demonstration of Its Specificity. *J. Biol. Chem.* 195: 357, 1952.

the incidence of hypercholesteremia among 572 patients with cardiovascular disease and 110 diabetic patients. An analysis of the relationship of hypercholesteremia to age and sex is shown in table 2. Study of these statistics indicates that between 30 and 79 years of age (for which age groups the number of patients studied is adequate for statistical evaluation) there is a steady rise in the mean serum cholesterol value, starting at 211.2 mg per 100 ml and increasing through each decade to a mean value of 275.6 mg per 100 ml. Note also that the incidence of hypercholesteremia increases in each decade up to 80 years of age. It is equally significant to note the fact that between 40 and 70 years of age the incidence of hypercholesteremia is greater in women, reaching a definite peak between 50 and 60 years of age. A possible explanation for this sex difference in hypercholesteremia will be discussed later.

BACKGROUND FOR PRESENT STUDY

Kellner's observations on the inhibitory effect of polysorbate 80, a surface active agent, on the deposition of cholesterol in the vessels of cholesterol-fed rabbits² and the report of Krantz and co-workers⁴ on the toxicologic, pharmacodynamic, and clinical observations on oral ingestion of polysorbate 80 prompted a clinical evaluation of polysorbate 80 in patients with hypercholesteremia. Kellner reported a rise in the blood cholesterol level and diminished atheromatous deposition in the rabbit with intravenous use of polysorbate 80. The report of Krantz and his associates showed no evidence of toxicity in the human in amounts of 6 gm a day taken orally over a period of four years. Analysis of the urine and stools of subjects studied by them showed complete elimination of the polyoxyethylene moieties of the emulsifier from the body, about 5% was excreted in the urine and 95% in the stool. The continued administration of polysorbate 80 in over 100 human subjects for periods up to four years failed to show any alteration of the metabolic rate, blood chemistry, or excretion of water-soluble vitamins or evidence of damage to the liver, kidneys, or hematopoietic system. Specifically, their studies on blood cholesterol in normocholesteremic patients failed to show any change in serum cholesterol values during the period of polysorbate 80 intake.

Polysorbate 80 in a 30% aqueous solution was accordingly administered, under our supervision, to a number of patients with hypercholesteremia in amounts of 20 cc daily divided into four doses. No appreciable change was observed in the serum cholesterol levels. At the same time, six other hypercholesteremic patients were given a standard commercial preparation of choline, inositol, and methionine, with no change in the serum cholesterol levels.

As a result of these preliminary observations, an experimental mixture of polysorbate 80, choline, and inositol was prepared, containing 500 mg of polysorbate 80, 500 mg of choline dihydrogen citrate, and 250 mg of inositol in each 5 cc of the solution. From June, 1951, to December, 1951, this mixture was given to six patients at the Fordham Hospital. All were controlled diabetics on a standard diet, and all were hospitalized during the experiment. All patients had pretreatment serum cholesterol levels above 300 mg per 100 ml on at least two

occasions before medication was started. The pretreatment of cholesterol levels ranged from 320 to 521 mg per 100 ml. In each instance, there was a significant drop in the serum cholesterol value while the patient was taking the polysorbate 80-choline-inositol complex. Serum cholesterol values were determined once weekly during this study. A significant drop in the serum cholesterol level was noted within two weeks after the start of therapy. At the end of three weeks' treatment, the greatest fall in the serum cholesterol values had been noted in all patients. This drop ranged from 93 to 216 mg per 100 ml. The greatest reductions in serum cholesterol values were noted in patients with the highest pretreatment levels. The reduction persisted as long as the patients were maintained on the polysorbate 80-choline-inositol complex. When medication was discontinued, there was a prompt rise in the serum cholesterol value, usually approximating the pretreatment values (table 3).

TABLE 1—Sex Distribution and Incidence of Hypercholesteremia Among 572 Cardiovascular Patients and 110 Diabetic Patients

Diagnosis	Sex	Total Patients		Patients with Hypercholesteremia	
		No	%	No	% of Total
Cardiovascular disease	M	320	55.94	45	14.06
	F	252	44.06	46	18.25
Diabetes	M	37	33.64	10	27.02
	F	73	66.36	17	23.29

TABLE 2—Relation of Hypercholesteremia to Age and Sex

Age yr	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99
Mean serum cholesterol level Mg per 100 ml	173.8	191.0	211.2	227.4	250.7	262.0	275.6	292.5	203
No of patients	4	21	98	117	183	249	164	86	2
Male	1	8	46	66	96	137	84	23	
Female	3	13	48	62	87	112	70	13	2
No with hypercholesteremia	0	0	2	13	22	62	35	7	0
Male			2	6	7	23	18	3	
Female				7	15	39	17	4	
% of age group with hypercholesteremia			2.2	11.1	12.0	14.9	22.7	19.4	
% males			100	46.2	31.8	41.2	51.4	42.9	
% females				53.8	68.2	58.8	48.6	57.1	

Because of these observations, it was decided to broaden this aspect of the clinical investigation and study the action of the polysorbate 80-choline-inositol complex on serum cholesterol and its related compounds. The high content of cholesterol in the adrenal cortex, the work of Conn and co-workers⁵ demonstrating a significant decrease in circulating serum cholesterol on persistent stimulation of the adrenal cortex, and the report of elevated serum cholesterol associated with Addison's disease⁶ prompted the inclusion of a survey of the urinary steroids and urinary cholesterol in association with the serum cholesterol studies.

4 Krantz, J. C. Jr., Culver, P. J., Carr, J., and Jones, C. M. Sugar Alcohols—28 Toxicologic, Pharmacodynamic and Clinical Observations on Tween 80. Bull. School Med. Univ. Maryland 36: 48, 1951.

5 Conn, J. W., Vogel, W. C., Louis, L. H., and Fajous, S. S. Symposium on Pituitary Adrenal Function. American Association for the Advancement of Science, December 1949. Serum Cholesterol. Probable Precursor of Adrenal Cortical Hormones. J. Lab. & Clin. Med. 35: 504, 1950.

6 Medvei, C. V. Zur Wirkung des Nebennierenrindenhormons auf die Cholesterolinämie. Gleichzeitig Bericht über familiäres Auftreten von M. Addisonii. Ztschr. klin. Med. 128: 58, 1935.

METHODS AND MATERIAL

The first step was to establish a set of normal values. One hundred thirty-six serum cholesterol level determinations were done on serum obtained from adults in whom this level was persistently below 300 mg per 100 ml. These specimens were taken from subjects of all ages, all of whom were patients in the hospital on a standard hospital diet. The values ranged from 168 to 286 mg per 100 ml. One hundred thirty-nine determinations of 24 hour urine cholesterol excretion were done on the same subjects, according to the method described by Davidson.⁷ These values ranged from a low of 0.28 mg to a high of 0.45 mg per 24 hours. One hundred eighty determinations of the urinary excretion of formaldehydrogenic steroids were done on the same patients by the method described by Daughaday.⁸ The values ranged from 120 to 162 μ g per 24 hours. Fifty-five determinations of urinary 17-ketosteroid excretion were done on

TABLE 4—Mean Serum Cholesterol and Urine Cholesterol, Formaldehydrogenic Steroid, and 17-Ketosteroid Levels in Untreated Normocholesteremic Patients

	Mean	Standard Deviation	Standard Error	Coefficient Variation, %
Serum cholesterol	222.3 mg /100 ml	80.9	8.7	13.9
Urine cholesterol	0.35 mg /24 hr	0.04	0.01	11.4
Urine formaldehydrogenic steroids	137.3 μ g/24 hr	10.39	2.52	7.6
17 ketosteroids, males	15.5 mg /24 hr	1.43	0.63	9.3
17 ketosteroids, females	9.8 mg /24 hr	0.99	0.46	10.5

TABLE 5—Mean Serum Cholesterol and Urine Cholesterol, Formaldehydrogenic Steroid, and 17-Ketosteroid Levels in Untreated Hypercholesteremic Patients

	Mean	Standard Deviation	Standard Error	Coefficient Variation, %
Serum cholesterol	333.7 mg /100 ml	50.9	6.2	14.9
Urine cholesterol	0.48 mg /24 hr	0.20	0.03	42.2
Urine formaldehydrogenic steroids	127.3 μ g/24 hr	30.10	6.00	23.6
17 ketosteroids, males	15.2 mg /24 hr	1.51	0.50	9.9
17 ketosteroids, females	8.4 mg /24 hr	1.85	0.39	21.9

male patients according to the method of Dreker,⁹ the values in this series ranged from a low of 11.1 mg to a high of 18.6 mg per 24 hours. An equal number of determinations were done on female patients using the same method, and the values varied from 7.8 to 12.2 mg per 24 hours. The mean values in normocholesteremic patients are shown in table 4.

A similar statistical survey was done on patients with hypercholesteremia (serum cholesterol levels above 300 mg per 100 ml). The following laboratory studies were done: 210 serum cholesterol determinations ranging from 300 to 785 mg per 100 ml, 143 determinations of urine cholesterol excretion ranging from 0.21 to 1.8

mg per 24 hours, 81 determinations of urinary formaldehydrogenic steroid excretion ranging from 40 to 196 μ g per 24 hours, 69 urinary 17-ketosteroid determinations were done on male patients with hypercholesteremia, with values ranging from 12 to 18.8 mg per 24 hours, 72 similar determinations were done on female patients with hypercholesteremia, ranging from 3.1 to 14.2 mg per 24 hours. Table 5 shows the mean values.

Serum protein-bound iodine determinations were done periodically, by a modification of the method reported by Harsha,¹⁰ on the hypercholesteremic patients treated with the polysorbate 80-choline-inositol complex to demonstrate normal thyroid function. The normal range is from 3 to 10 μ g per 100 ml. Studies on blood surface tension and the urinary excretion of alcoholic sterols have not as yet been completed and will be reported at a later date.

The subjects chosen for this study were inpatients on the medical services of the Fordham Hospital. The diabetics included in the study were well controlled, and their diet did not vary appreciably while they were under observation. Patients with myxedema, biliary obstruction with icterus, nephrosis, and uncontrolled diabetes were not included in this group. Patients with hypothyroidism and frank myxedema have been evaluated according to the method described but will be reported on separately because of the interesting results obtained.

Before the study of the effects of the polysorbate 80-choline-inositol complex on any given patient was begun, a minimum of two serum cholesterol determinations as well as urine cholesterol and steroid studies were done. Determinations of the serum protein-bound iodine level were done sporadically during the course of any individual study to indicate the constancy of thyroid function during the period of observation.

RESULTS

Sixteen patients with hypercholesteremia (serum cholesterol levels ranging from 306 to 521 mg per 100 ml) were studied in the manner described. After pretreatment cholesterol levels had been determined, all patients were given daily 20 cc of the polysorbate 80-choline-inositol complex divided into four doses. While these patients were being supervised in the hospital, the medication was given with reasonable regularity. Occasionally a dose was missed, because either the nurse was occupied with urgent duties or the patient was absent from the ward for a diagnostic procedure. The patients' diet did not vary during the observation period.

Of the 16 patients studied, only one failed to show evidence of response to the complex by revealing no significant change in the serum cholesterol or urinary steroid levels. This patient had a carcinoma of the lung with metastases. There was no evidence of diminished liver function, although the patient continued to lose weight and had no appetite. Fifteen patients showed a definite response, characterized by a significant fall in the serum cholesterol level, usually evident during the second week of treatment and reaching its lowest level between the fifth and sixth weeks. In no patient treated were hypocholesteremic levels reached. The fall in cholesterol ranged from 59 to 233 mg below the pretreatment levels. Usually, the higher the pretreatment serum cholesterol level was, the greater the fall observed.

7 Davidson W M B Method for Estimation of Cholesterol in Urine Using Liebermann Burchard Colour Reaction Glasgow M J 30 216 1949

8 Daughaday W H Jaffe H and Williams R H Chemical Assay for Cortin Determination of Formaldehyde Liberated on Oxidation with Periodic Acid J Clin Endocrinol 8 166 1948

9 Dreker I J and others Determination of Urinary Steroids Preparation of Pigment Free Extracts and Simplified Procedure for Estimation of Total 17 Ketosteroids J Clin Endocrinol 12 55 1952

10 Harsha W N Plasma Protein Bound Iodine Determinations Am J M Sc 221:626 1951

during treatment. The fall in serum cholesterol concentration was accompanied by a significant rise in the output of urinary cholesterol, which seemed to reach a peak during the second or third week of treatment and then gradually returned to pretreatment levels. There was also a significant rise in the urinary output of formaldehydogenic steroids (table 6), this rise was more protracted than that noted for urine cholesterol, but as the length of the study period increased, a decrease toward the pretreatment level occurred. No change was noted in the output of urinary 17-ketosteroids as compared with pretreatment levels in any patient. No change in the serum protein-bound iodine level was noted at any time during the study. All the observations on this series of

TABLE 6—Statistical Significance of Results from Use of Polysorbate 80-Choline Inositol Complex

A. Serum Cholesterol Levels of Hypercholesteremic Patients

	No of Patients	Mean Level Mg Per 100 ml	Standard Deviation	Standard Error
Without treatment	210	333.7	60.9	6.2
After treatment	10	270.5	31.3	7.8

Tests for Significance Between the Means

Pooled standard deviation	49.9	Calculated T from data	4.30
Standard error of difference	12.6	T at 99% level	2.60

B. Urine Cholesterol Concentration in 10 Hypercholesteremic Patients

	Mean	Standard Deviation	Standard Error
Before treatment mg per 24 hr	0.52	0.27	0.07
Peak during treatment, mg per 24 hr	1.13	0.11	0.100

Tests for Significance Between the Means

Pooled standard deviation	0.30	Calculated T from data	4.81
Standard error of difference	0.120	T at 99% level	2.74

C. Significance of Differences Between Peak and Low Urinary Formaldehydogenic Steroid Excretion Among Untreated and Treated Normocholesteremic and Hypercholesteremic Patients

	Comparisons					
	A* and B†	A and C‡	A and D§	B and C	B and D	C and D
Pooled standard deviation	5.20	14.8	34.1	17.4	39.3	41.1
Standard error of difference	0.20	5.02	11.7	7.7	15.8	10.0
Calculated T	0.093	0.48	5.20	.33	3.91	3.03
T at 99.5% level	2.78	2.77	2.70	2.96	2.80	2.79

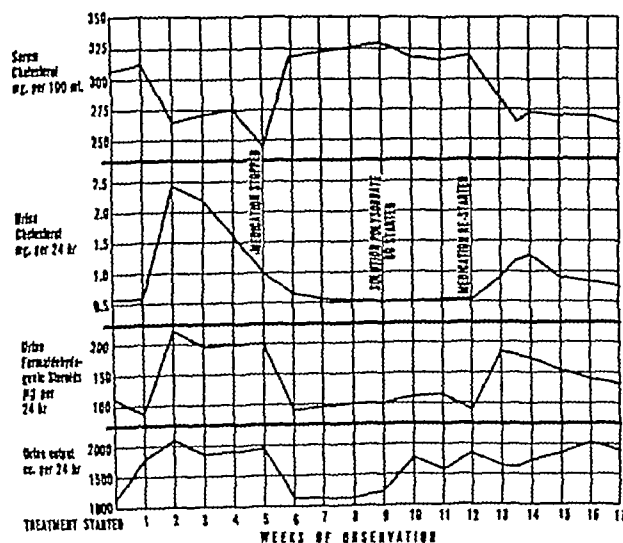
* A Untreated normocholesteremic patients
† B Treated normocholesteremic patients
‡ C Untreated hypercholesteremic patients
§ D Treated hypercholesteremic patients

patients are listed in table 7. The chart shows a characteristic pattern of the changes in the serum cholesterol, urinary cholesterol, and urinary formaldehydogenic steroid levels as noted in 1 of the 15 patients who responded to treatment with the polysorbate 80-choline-inositol complex.

Cessation of treatment resulted in a prompt rise of serum cholesterol values to pretreatment levels. In two patients who showed the described changes in serum cholesterol, urinary cholesterol, and urinary formaldehydogenic steroid levels medication was stopped after four weeks, and in both instances all values studied promptly returned to pretreatment levels. After three weeks with no therapy, both were started on treatment with daily doses of 20 cc of a 30% polysorbate 80 solution. The only change noted was an increase in the total 24 hour urine output. No change whatever was noted in

the values for serum cholesterol, urinary cholesterol, or urinary formaldehydogenic steroids. After three weeks polysorbate 80 therapy was discontinued, and, treatment with the polysorbate 80-choline-inositol complex was reinstituted. A prompt fall in the serum cholesterol values was noted in both patients, associated with a corresponding increase in the output of urinary cholesterol and formaldehydogenic steroids. The observations on one of these patients are shown graphically in the chart.

All patients with hypercholesteremia who were treated with polysorbate 80-choline-inositol complex experienced a feeling of well-being that cannot at present be explained physiologically, although it was consistently noted and may possibly be attributable to increased adrenal cortical function as manifested by an increased urinary output of formaldehydogenic steroids. All of these patients noted increased diuresis, especially during the first weeks of treatment (see the chart). Preliminary observations would indicate that this is related to the administration of polysorbate 80.



Typical response of a hypercholesteremic patient (a 67 year-old woman hospitalized for a cardiovascular accident) to treatment with the polysorbate 80-choline inositol complex.

Ten patients with normal serum cholesterol levels, below 300 mg and ranging from 192 to 288 mg per 100 ml, were studied in the same manner. After adequate pretreatment levels were recorded, they were given 20 cc daily of the polysorbate 80-choline-inositol complex for periods up to nine weeks. As in the hypercholesteremic patients, the serum and urinary cholesterol and urinary 17-ketosteroid and formaldehydogenic steroid levels were determined frequently. In no patient was there a change in any of these values beyond the normal variations (table 8).

The data shown in table 6 were obtained by applying statistical techniques to the observations to test their significance. The figures reveal that for each criterion the effects created by the medicament could not be due to chance, because, in each instance, the calculated T is higher than the T at the 99% or 99.5% levels, respectively. In part C of table 6, where the calculated T was lower than the T at the 99.5% level, it was logically expected to be so, as in the case of the comparisons

between treated and untreated normocholesteremic patients, between untreated normocholesteremic and hypercholesteremic patients, and between treated normocholesteremic and untreated hypercholesteremic patients

One patient with Addison's disease was studied. This patient had hypercholesteremia and was given the polysorbate 80-choline-inositol complex prior to treatment with desoxycorticosterone acetate for adrenal inadequacy. No change in the serum cholesterol level was evidenced either with the complex alone or with the complex in combination with desoxycorticosterone acetate. Throughout the observation period the urine cholesterol excretion ranged from 0 to 0.2 mg per 24 hours. The value for 17-ketosteroid excretion was 2.6 mg per 24 hours, and the formaldehydogenic steroid value ranged from 21 to 34 μ g per 24 hours. The serum protein-bound iodine value was 6.8 μ g per 24 hours (table 9).

COMMENT

It would appear from this study that the polysorbate 80-choline-inositol complex has physiochemical properties not manifested by any of its component parts. The use of either polysorbate 80 or choline and inositol preparations individually have, in our experience, failed to produce any of the changes reported in this paper. The combination of these substances resulted in a "complex" that lowered the serum cholesterol levels while increasing the urinary cholesterol and formaldehydogenic steroid output in a limited number of hypercholesteremic patients.

These facts strongly suggest that the mechanism for the lowering of the serum cholesterol level in these patients is related to adrenal cortical function. In addition, the increase in urinary cholesterol output associated with the fall in the serum cholesterol level would suggest a change in the character of the lipid molecule that enhances glomerular filtration. Such an action can be rationalized for this complex by an evaluation of its components. Polysorbate 80 is an effective dispersing agent and, as Kellner has demonstrated, it produces a profound change toward increasing the stability of lipid emulsions. Choline and inositol are also essential in the formation of substances necessary for fat transport. Although the previous reports of the action of the individual components on serum cholesterol have been largely confusing, the therapeutic preparation described seems effective in lowering serum cholesterol in the presence of an intact adrenal cortex. In view of the fact that the preparation produces no apparent change in the serum cholesterol level or urinary excretion of cholesterol and corticosteroids in normocholesteremic persons, it would seem that at least in the hypercholesteremic patients reported the state of serum cholesterol is such as to hinder its utilization by the adrenal cortex. The use of the polysorbate 80-choline-inositol complex seems to alter the state of serum cholesterol to make the cholesterol molecule more easily filterable through the renal glomerulus and more accessible to the adrenal cortex for its requirements.

Verification of these facts requires the study of a much larger series of patients than has been reported. In addition to continuing these studies, the Metabolic Research Laboratory at Fordham Hospital is conducting investiga-

tions into surface tension phenomena in normocholesteremic and hypercholesteremic patients before and after treatment with the polysorbate 80-choline-inositol complex. A more thorough investigation of urinary steroids has been started with chromatographic techniques.

With regard to additional hormonal factors in the regulation of the serum cholesterol level, it is interesting to note that in our survey the incidence of hypercholesteremia was greater in women between the ages of 40 and 70 years, reaching its peak between 50 and 59 years. A possible explanation may be that this greater incidence of hypercholesteremia is related to the gradual diminution in ovarian hormone production, with consequent increase in serum cholesterol. This increment may represent that portion of serum cholesterol previously utilized in the production of ovarian hormones.

SUMMARY

In a survey of the serum cholesterol levels in 960 consecutive patients admitted to the medical services of Fordham Hospital, 13.7% were found to have serum cholesterol values of 300 mg per 100 ml or over, 69.5% of the patients with hypercholesteremia had cardiovascular disease, and 20.7% had diabetes. Analysis of these data revealed that the mean cholesterol value increases with each decade as does the incidence of hypercholesteremia. A sex difference in the incidence of hypercholesteremia between the fifth and seventh decades was noted. During this period, the incidence of hypercholesteremia is greater in women, reaching a peak between 50 and 59 years of age. The possible role of the ovary in this sex difference is mentioned.

The effect of a polysorbate 80-choline-inositol complex on the serum cholesterol and protein-bound iodine levels and urinary cholesterol, 17-ketosteroid, and formaldehydogenic steroid excretion in 16 hypercholesteremic patients is reported. In 15 of the 16 patients studied, there was a significant drop in the serum cholesterol level associated with a rise in the output of urine cholesterol and formaldehydogenic steroids. No change in the 17-ketosteroid excretion was noted. No such changes were noted in a patient with Addison's disease and hypercholesteremia or in normocholesteremic patients. The role of the polysorbate 80-choline-inositol complex in changing the state of the serum cholesterol emulsion and the enhancement of cholesterol utilization by the adrenal cortex are discussed.

CONCLUSIONS

The long-range value of the lowering of elevated serum cholesterol levels could not be discussed in this report. The number of patients studied and the length of the study were too limited, and it was inexpedient in the preliminary report to record occurrence of any changes relative to atherosclerosis. This is the subject for a long term study, which is now under way. The use of the polysorbate 80-choline-inositol complex has, however, given some indication of the role of the adrenal cortex in the control of cholesterol metabolism and the influence of the state of the serum cholesterol emulsion on adrenal cortical function. This will, we hope, on further study, shed some light on the physiological role of cholesterol in man.

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LIGATION OF HEPATIC AND SPLENIC ARTERIES IN TREATMENT OF CIRRHOSIS WITH ASCITES

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The surgical treatment of disturbances of the blood flow through the liver resulting from intrahepatic disease and caused, in the majority of patients, by one of the various types of cirrhosis of the liver, has been and continues to be unsatisfactory in many patients. There is no question that, at present, medical management in cases of cirrhosis of the liver is the treatment of choice. In spite of commendable adherence by a patient to any particular medical regimen, however, such treatment is too often ineffectual, and the patient succumbs to progressive liver failure, in addition to wasting ascites and/or exsanguination, with one or more repeated bouts of bleeding from esophageal varices. The inability to judge clinically and by liver function tests the degree of irreversible damage in the parenchyma of the liver and, thus, the extent of the departure from normal and the reduction of liver function often makes it impossible for the surgeon to determine preoperatively the severity of the operative risk with which he is faced.

The problem that confronts the surgeon is gradual failure of the patient because of wasting ascites and/or exsanguination caused by bleeding from esophageal or gastric varices. For many years, correction of these two complications by operative measures has been the surgical goal. The results of the many and varied procedures that have been suggested in the past have been gratifying, the patient has been restored to a life of activity in numerous instances. In many other instances, however, disappointing failure has been experienced.

There exists today a great difference of opinion as to the proper surgical methods to be employed in the treatment of ascites and bleeding esophageal varices, and this lack of unanimity of opinion will certainly continue until surgeons are able to determine the true hepatic function and, thus, the condition of the patient by laboratory procedures or liver function tests that are more accurate than those at hand today. At the present time, regardless of the operation employed, the postoperative course is unpredictable, and any attempt to foretell the outcome, on the basis of preoperative or postoperative liver function tests or the gross and microscopic appearance of the liver is prone to error.

As an indication of the lack of uniform success attending surgical treatment, we might cite the number and variety of procedures utilized in the past. Direct cauterization of esophageal varices by the injection of solutions causing sclerosis, resection of the lower end of the esophagus, ligation of the splenic artery with or without splenectomy, creation of a connection between portal and systemic circulation, such as splenorenal or porta-caval shunts, and omentopexy (Talma operation) have all raised the hope that a definitive solution of this problem had been accomplished. These procedures have

often failed in critically ill patients, primarily because of insurmountable technical difficulties.

The purpose of this paper is to present further clinical experiences in the treatment of ascites and hemorrhage from esophageal varices resulting from cirrhosis of the liver by ligation of various branches of the arterial supply to the liver and spleen. In a preliminary report, one of us¹ described six patients so treated. This paper describes 23 patients operated on since 1947 and adequately followed.

PREOPERATIVE PREPARATION

The patients on whom we operated were all suffering from uncontrolled, wasting ascites, hemorrhage from esophageal varices, or both. Each patient had previously been treated by medical means and was presented for surgical consideration after failure of medical management was evident. Each patient was extensively studied prior to operation in an attempt to assay accurately the liver function, and each was considered to be in the poor risk category. All were given antibiotics, penicillin and aureomycin, for at least five days preoperatively. Bleeding, if present, was controlled with a Sangstaken tube and blood lost was replaced with whole blood to a minimum of 12 gm of hemoglobin per 100 cc. Though we preferred to operate when there was no evidence of hemorrhage, surgery was performed during a hemorrhagic episode in several patients. Patients with massive ascites were subjected to paracentesis one or two days prior to operation.

OPERATIVE TECHNIQUE

Cyclopropane anesthesia was the anesthesia of choice in these patients because of its high oxygen content and rapid induction and because it allowed the patient to return to consciousness before leaving the operating room. It is felt that in a patient with a damaged liver thiopental sodium, ether, or even nitrous oxide might have deleterious effects.

A high upper midline incision was preferred, although a transverse incision was employed in some instances. Both give adequate exposure. In the majority of patients, there was a large collection of ascitic fluid that was first siphoned off completely. The peritoneum was always thickened and did not have the usual sheen, indicative of chronic peritonitis. After removal of the ascitic fluid and freeing of adhesions, if present, the liver was inspected. The gallbladder was usually distended and enlarged, and the hilar lymph nodes were grossly enlarged, as were the

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¹ Rienhoff W F Jr. Ligation of the Hepatic and Splenic Arteries in the Treatment of Portal Hypertension with a Report of Six Cases. Preliminary Report. *Bull Johns Hopkins Hosp* 88:368 (April) 1951.

lymphatic channels about the hilum of the liver and along the common duct. To a greater or lesser degree, there were extraperitoneal dilated varicose veins of different sizes that appeared to be collateral venous circulatory channels between the portal and the caval systems. It was rarely difficult to control bleeding from this source during the dissection of the branches of the celiac axis. The index finger was placed in the foramen of Winslow, and the common hepatic artery was palpated in the gastrohepatic ligament. In all but a few persons, this vessel was enlarged over two and one-half times its normal size, tortuous, and thin walled, a definite thrill could be felt that indicated, it seemed to us, a marked increase in arterial blood flow. Next, the gastroduodenal artery was identified in juxtaposition to the posterior surface of the first portion of the duodenum. This vessel was then traced cephalad to its parent trunk, the common hepatic artery. The gastroduodenal artery arises from the common hepatic artery, regardless of whether this latter vessel arises from the celiac axis or from the superior mesenteric artery, a relatively common variation. The departure of the gastroduodenal artery from the common hepatic artery forms an arch beneath which the portal vein passes in oblique direction. Identification of these vessels, therefore, enables the surgeon to measure the pressure in the portal vein. We used an ordinary spinal manometer filled with saline solution for this purpose or a more accurate strain gage manometer attached to a commercial Hathaway oscillograph equipped with a camera for permanent recording. Portal pressures, in those patients in whom we measured them, were in the range of 400 mm H₂O or above. We thought it essential to make all measurements of portal pressure at this stage of the operation, because, as the dissection is carried further toward the celiac axis, numerous collateral branches of the portal veins are encountered and are frequently divided and tied, rendering measurements possibly inaccurate. In the first six patients, the common hepatic artery was ligated distal to the departure of the gastroduodenal artery, however, in the other patients, additional ligatures were placed on the hepatic artery proximal to the gastroduodenal artery in order to prevent the development of collateral circulation through this vessel from the superior mesenteric artery. In those patients with ascites alone, the splenic artery was ligated as well as the hepatic artery. In those in whom bleeding occurred, the left gastric artery was doubly ligated as well as the hepatic and splenic arteries.

If difficulty is experienced in locating the common hepatic artery by palpation, this can best be accomplished by placing the index finger in the foramen of Winslow and determining the area of pulsation in the gastrohepatic ligaments by pressure between the thumb and index finger. As a rule, a thrill can be elicited because of enlargement and increased blood flow through the common hepatic artery. In two of the patients in whom it was difficult to dissect out the branches of the celiac axis, the common hepatic artery was ligated at the level of the foramen of Winslow. This, of course, placed the ligatures distal to the departure of the gastroduodenal artery and prevented the development of any collateral circulation from this source. The lesser peritoneal cavity was then exposed through the gastrocolic omentum, and the

splenic artery was located along the superior border of the pancreas and doubly ligated. This method of ligating the branches of the celiac axis somewhat distal from their origin may be helpful in accelerating the operating time.

Pressure measurements in the portal vein were made after the arterial ligation and liver biopsy. In all patients fresh bleeding was still encountered from the cut edges of the liver and was controlled by suture as in a normal person. The wound was then closed. The usual operating time was approximately one to one and one-half hours.

POSTOPERATIVE COURSE

Postoperatively, the patients were given antibiotics for from 10 days to two weeks. Fluids were given intravenously, and blood transfusions were given when indicated. Fluids were given orally immediately after surgery, and, if necessary, paracentesis was resorted to as indicated. Paracentesis should not be performed more often than necessary not only because of the waste of protein but also because frequent tapping seems to encourage the re-formation of ascitic fluid more rapidly. Postoperative hospitalization ranged from 10 days to a month.

RESULTS

The over-all mortality in this series of 23 patients was 30.4%. Six patients died in the immediate postoperative period while they were still in the hospital, and one died three months after operation of recurrent hemorrhage from esophageal varices. All of the patients who died in the hospital were studied at autopsy. Two deaths, including the one that occurred outside the hospital, were clearly due to continued hemorrhage. One patient died of cardiac failure and pneumonia of the left lower lobe. The other patients died of less distinct causes. We attributed death in two patients to progressive liver failure caused probably by alteration of the circulation in rapidly advancing cirrhosis. Both of these patients showed clinical and chemical evidence of a gradual loss of liver function after operation. Oliguria developed in both, and both died in coma. The death of one patient was attributed to uremia, oliguria developed, and the man died with a high nonprotein nitrogen level, although results of liver function studies did not change appreciably from the preoperative values. The cause of death in one patient was not determined. He died 18 hours after operation, without regaining consciousness. An autopsy failed to reveal any cause of death. He had had a convulsion just before he died, and it was assumed he might have had a cerebrovascular accident, but we could not obtain permission to examine the brain. In these patients, the microscopic appearance of the liver at post mortem did not vary from the tissue obtained by biopsy at the operating table. We observed no gross infarction of the liver. There were microscopic areas of central lobular necrosis of the liver in three patients, but these areas were small and had been seen in the surgical biopsies at the time of operation.

Although all of the 23 patients were thought to have Laennec's cirrhosis clinically, there were two diagnostic errors found at operation. One patient who was thought to have cirrhosis with intractable ascites was found to have extensive carcinomatous metastases in the liver from a lesion in the esophagus. The hepatic artery was ligated in the hope that cutting down the oxygen satura-

tion of the blood reaching the metastases would retard growth. The patient survived and left the hospital improved as far as ascites was concerned. He was still improved three months after operation, with normal liver function, but has not been heard from since. Another patient with a large nodular liver and ascites was found to have huge multiple hemangiomas. Hepatic and splenic artery ligation was done in the hope that ascites might be reduced. The patient is living and well 20 months after operation and no longer has demonstrable ascites, despite the fact that she has had no other treatment. The other 21 patients had periportal cirrhosis that was proved microscopically.

COMMENT

We have, then, 16 patients who survived hepatic artery ligation, with additional ligation of the splenic artery in most of the patients with ascites and of the splenic and left gastric arteries in those with bleeding esophageal varices. Eliminating the patient with carcinoma of the esophagus, 15 patients remain as a determinate group. They were observed for a period varying from several months to six years after surgery. All are improved. Two patients, who were operated on because of bleeding, had subsequent small hematemeses. In neither was this bleeding as massive or as fulminant as prior to operation. One patient, who hemorrhaged to shock levels several times prior to hepatic artery ligation, has had several small hemorrhages since but none massive enough to require transfusion. All of the patients with ascites are improved. The degree of improvement ranges from that in several patients in whom all evidence of ascites is absent to that in a man who requires paracentesis at intervals of six weeks to two months in contrast to once a week before operation.

This number of patients is obviously too small for statistical analysis. It is interesting to note, however, that 13 patients presented themselves for operation primarily because of ascites. Of this group, 2 are dead and 11 are improved, a mortality rate of about 16.3%. Ten were operated on primarily for hemorrhage. Of this group, five are dead and five are alive, a mortality rate of 50%. Of the five dead, only two died of continued bleeding. Two of those who survived have had small but definite recurrent hemorrhages. The presence of ascites in cirrhosis, therefore, is not considered a contraindication for hepatic artery ligation, and, in this group of patients, ligation was apparently successful in reducing intractable ascites.

Comparison of preoperative and postoperative liver function studies shows no common pattern of change in these patients. Four patients who were jaundiced prior to operation showed a rise in serum bilirubin and alkaline phosphatase levels after hepatic artery ligation. Two of those patients died, the two whose death was attributed to progressive liver failure. One patient became deeply jaundiced after operation, but this began to clear after two weeks, and she has been free from clinical jaundice for many months. The fourth patient who had a marked increase in serum bilirubin after operation has been studied on several occasions at the Mayo Clinic. Each time there has been a slight elevation of the serum bilirubin, but clinical jaundice has not been noted. Thymol turbidity and cephalin flocculation tests have shown higher values postoperatively in several patients.

Perhaps the most significant chemical change noted has been an increase in total serum protein and return to nearly normal of the albumin-globulin ratio in several instances. This is probably a reflection of the decrease in ascites and waste of protein in ascitic fluid. The prothrombin time has improved postoperatively in several patients. The sulfobromophthalein (Bromsulphalein) retention has remained unchanged in one patient and has decreased in another. Unfortunately, follow-up blood chemistry studies are not available for many of these patients.

Portal venous pressure measurements were not determined postoperatively in these patients, for we have had no reason or opportunity to subject any of them to another laparotomy. We believe, however, that the portal hypertension is probably significantly reduced in some of the patients. This is because of reduction of size of the esophageal varices and other collaterals in some of the patients and because of the change in character and amount of bleeding in the two patients still alive who had postoperative hematemesis. In both of these patients, postoperative bleeding was small or occult, whereas prior to operation it was massive and exsanguinating. Probably portal hypertension was not relieved in those patients who bled to death through hematemeses after operation.

SUMMARY AND CONCLUSIONS

Our results appear to show that the greatest benefit from ligation of the common hepatic and splenic arteries occurs in those patients with intractable ascites only. When the common hepatic, splenic, and left gastric arteries were ligated to prevent further bleeding from esophageal varices, the results were, to say the least, equivocal and certainly not as favorable as the results in the patients with ascites alone.

In an effort to explain the beneficial effects of diminishing the arterial blood flow to the liver, it occurred to us that the production of ascites was mainly a result of chronic passive congestion of the liver, with a marked increase in the flow of lymph from the liver. The mechanism of the production of portal hypertension, which almost always must precede the development of esophageal varices, may vary from that producing ascites. We observed in all of the patients with ascites that lymphatic fluid from the dilated lymphatic vessels and enlarged lymphatic glands dripped, as a transudate, from the hilum of the liver. The chronic passive congestion of the liver in these cirrhotic patients develops, we believe, as a result of the normal reparative processes. Liver tissue is regenerated not in its normal lobular pattern but in irregular nodules between inelastic scars. This haphazard growth of new liver tissue and old scar tissue interferes with the outflow of blood through the efferent hepatic veins by causing pressure on these veins. The liver becomes overloaded with blood from the afferent vessels, the total of the normal blood flow through the portal vein plus the apparently increased blood flow through the hepatic artery. Diminishing the blood flow to the liver by blocking the hepatic arterial flow and removing the contribution of the splenic artery to the portal venous flow seemed to us, therefore, a logical procedure.

Although our observations of the patients in whom the portal pressures were measured show that ligation

of the hepatic and splenic arteries causes a drop in portal pressure, we have no proof that this drop is sustained over any length of time. Ligation of the branches of the celiac axis undoubtedly causes changes in the blood flow through the liver but may not produce a sufficient drop in portal pressure to protect the patient completely from further hemorrhage. Although it is difficult to draw conclusions from this small series of patients, we believe that for the patient with ascites alone ligation of the hepatic and splenic arteries is the operation of choice. Our results in patients with bleeding esophageal varices were not as successful as in those with portacaval shunts.

There were no instances of gross liver necrosis in this series, and we think that, with the preoperative preparation of the patients with antibiotics, they will survive ligation of the common hepatic artery. Ligation of the common hepatic artery at the level of the foramen of Winslow distal to the departure of the gastroduodenal and the splenic arteries in the lesser peritoneal cavity along the superior margin of the pancreas eliminates a great deal of the difficulty and the time-consuming dissection of the celiac axis. The ligation of these vessels would seem to be sufficient for either the cure or the amelioration of ascites. We feel that double ligation of the arteries is sufficient and that division of the vessels is not necessary. We believe that ligation of the hepatic artery should not be done proximal to the departure of the gastroduodenal artery but distal to that departure to avoid development of a collateral circulation through the distal hepatic artery from the gastroduodenal artery, which would nullify any benefits from ligation of the common hepatic artery.

We believe that the occasional increase in jaundice and serum bilirubin after ligation of the arterial branches may be due to edema and loss of the squamous character of the epithelium in the intrahepatic bile ducts. These ducts receive their blood supply from the branches of the hepatic arteries. A temporary obstructive jaundice is, therefore, superimposed on a cirrhotic condition, which would explain the postoperative increase in the blood phosphatase and serum bilirubin. Even in the very poor risk patient, whether ligation of the arterial supply to the liver will prove to be efficacious in controlling bleeding from esophageal varices is still unproved. It is to be emphasized that all patients treated in the series were, clinically and from the standpoint of liver function studies, in the poor risk category. There was no selection of patients, because it is well known that of those suffering from hemorrhage due to esophageal varices 80% will be dead within a year to one and one-half years, if not operated on. In the patients in this group who died because of continued bleeding, ligation of the esophageal varices in the esophagus was not done. Perhaps this procedure should be employed in all instances of severe bleeding before either ligation of the arterial supply to the liver or some form of portacaval shunt is undertaken. At this time we feel that one should be cautious about drawing any conclusions until many further clinical studies and experimental observations have been made. At the same time, however, it would seem that ligation of the hepatic and splenic arteries is of definite benefit in patients with ascites alone, and we feel that this procedure should be continued so that its value may be firmly established.

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FAILURE OF CONVALESCENT GAMMA GLOBULIN TO PROTECT AGAINST HOMOLOGOUS SERUM HEPATITIS

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Reports on the efficacy of gamma globulin (immune serum globulin) prepared from normal adult human serum in the prevention of homologous serum hepatitis (viral hepatitis B), while indicating some prolongation of incubation period¹ or some degree of protection against the disease in battle casualties who have been given transfusions,² have provided evidence that this

material is considerably less potent in prophylaxis against this disease than against infectious (epidemic) hepatitis (viral hepatitis A). In addition, a previous attempt^{1b} to neutralize homologous serum hepatitis virus in icterogenic serum with 20 ml of normal gamma globulin was unsuccessful. In view of the frequency and importance of the problem of homologous serum hepatitis, effective prophylactic measures would be of great value in making the administration of blood or blood products safer. Since there does not exist at present a satisfactory method for inactivation of hepatitis virus in these materials before injection, and in view of the high degree of protection afforded by gamma globulin in infectious hepatitis,³ further exploration of the efficacy of this material in homologous serum hepatitis appeared to be of value.

Since the number of persons in the general population who have had homologous serum hepatitis is probably relatively small, it was felt that the comparatively low

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degree of protection against this disease and the failure of neutralization afforded by gamma globulin prepared from plasma pools drawn from the population at large might reflect low titers of antibodies against homologous serum hepatitis in such pools. It was considered, therefore, that gamma globulin prepared from plasma pooled from patients convalescent from homologous serum hepatitis might contain larger amounts of antibodies and thus afford passive protection against the disease. Consequently, such a preparation was obtained and its value studied in two sets of experiments in volunteers. 1 A protection test was conducted, in which the specially prepared gamma globulin was administered intramuscularly at the same time that infected whole blood was administered intravenously and again four weeks later. This test was designed to simulate the common situation in clinical practice, in which patients become infected during the intravenous infusion of whole blood or plasma contaminated with the virus. The protection test was extended to an additional group of volunteers who received icterogenic serum intramuscularly, this group also received gamma globulin twice by the same route. 2 A neutralization test was also done, in which infectious serum was mixed *in vitro* with the specially prepared gamma globulin and the mixture, after incubation, was injected intramuscularly into volunteers.

MATERIALS AND METHODS

A plasma pool was prepared from male volunteers, convalescent for periods varying from four months to six years from experimentally induced homologous hepatitis with jaundice due to the Fort Bragg strain of the virus (see table 1). This pool was fractionated and gamma globulin prepared by the method of Cohn and Oncley and their co-workers.⁴ This is the same technique that has been used in this country in the preparation of the various lots of Red Cross gamma globulin, which have afforded high degrees of protection against hepatitis A.³ Gamma globulin preparations thus prepared represent, as a rule, twentyfold to twenty-five-fold concentrations of antibodies, as compared to the titers of the original plasma pools, when tests for commonly present and detectable antibodies are employed in the evaluation.⁵ The preparation of convalescent gamma globulin used in these studies was stored at 4 C until used.

In the first experiment (1A) the whole blood used for infection was obtained from a volunteer at the onset of his illness, 74 days after inoculation with icterogenic material. This blood, taken during the acute stage, represented the third experimental human passage of the Fort Bragg strain of homologous serum hepatitis virus. In the second and third experiments (1B and 2) the serum used represented the second experimental human passage of the Fort Bragg strain and was obtained from a volunteer at the onset of his illness, 77 days after inoculation with icterogenic material. In neither of these materials was the amount of virus per milliliter of inoculum known.

Equal volumes of gamma globulin and infectious serum (diluted 1:50 in sterile broth) were mixed in a test tube yielding a final dilution of serum of 1:100. This mixture was incubated at 37 C for 1 hour and then at 4 C for 20 hours prior to administration. Control preparations of gamma globulin mixed with broth and of infec-

tious serum diluted 1:100 were incubated at the same time.

The volunteers were healthy, young institutionalized men between 18 and 35 years of age. The methods used in the volunteer studies have been described previously.⁶

EXPERIMENTS

Experiment 1A—In simulation of the common clinical mode of infection with homologous serum hepatitis, and in order to determine whether the specially prepared gamma globulin might protect against the transmission of the disease by transfusion, each of 11 volunteers received 50 ml of infectious type O whole blood by the intravenous route. Five of these men (group 1) served as controls, the other six (group 2) received 2 ml of gamma globulin intramuscularly at the time of transfusion and again 40 days later.

Experiment 1B—In view of the possibility that the amount of antibody in the gamma globulin used in ex-

TABLE 1—Origin of the Plasma Pool Collected from Volunteers Convalescent from Homologous Serum Hepatitis and Fractionated to Produce Gamma Globulin

Volunteer	Date of Occurrence of Homologous Serum Hepatitis	Date Bled for Pool	Duration of Convalescence at Time of Bleeding *
1	Nov 1940	March 1951	4 mo
2	Nov 1940	March 1951	4 mo
3	April 1948	March 1951	3 yr
4	April 1948	March 1951 May 1951	3 yr
5	Dec 1947	March 1951 May 1951	8 yr 3 mo
6	Oct 1947	March 1951 May 1951	3 yr 6 mo
7	Oct 1947	March 1951 May 1951	3 yr 6 mo
8	Sept 1947	March 1951 May 1951	3½ yr
9	Sept 1947	March 1951 May 1951	3½ yr
10	Sept 1947	March 1951 May 1951	3½ yr
11	Dec 1946	March 1951 May 1951	5 yr 3 mo
12	Nov 1946	March 1951 May 1951	5 yr 4 mo
13	Nov 1946	March 1951 May 1951	5 yr 4 mo
14	Oct 1946	March 1951 May 1951	5 yr 5 mo
15	Sept 1946	March 1951 May 1951	5½ yr
16	Sept 1946	March 1951 May 1951	5½ yr
17	Sept 1946	March 1951 May 1951	5½ yr
18	Aug 1946	March 1951 May 1951	5 yr 7 mo
19	Aug 1946	March 1951 May 1951	5 yr 7 mo

* Mean duration of convalescence 47.0 mo

periment 1A might not be adequate to protect against the amount of virus contained in 50 ml of infectious whole blood when given intravenously, a smaller inoculum, administered by a more peripheral route, was tried. Accordingly, each of nine volunteers was given 2 ml of infectious serum intramuscularly. Five of these men (group 3) served as controls, the other four (group 4) received, in addition to the serum, 2 ml of the specially

1a Duncan G G and others. An Evaluation of Immune Serum Globulin as a Prophylactic Agent Against Homologous Serum Hepatitis. *Am J M Sc* 213: 53 1947.

1b Stokes J Jr and others. Methods of Protection Against Homologous Serum Hepatitis. I. Studies on the Protective Value of Gamma Globulin in Homologous Serum Hepatitis SH Virus. *J A M A* 138: 336 (Oct 2) 1948.

2 Grossman E B Stewart S G and Stokes J Jr. Post-Transfusion Hepatitis in Battle Casualties and Study of its Prophylaxis by Means of Human Immune Serum Globulin. *J A M A* 129: 991 (Dec 8) 1945.

3b Stokes J Jr and Neefe J R. The Prevention and Attenuation of Infectious Hepatitis by Gamma Globulin. Preliminary Note. *J A M A* 127: 144 (Jan 20) 1945.

3c Gellis S S and others. The Use of Immune Serum Globulin (Gamma Globulin) in Infectious (Epidemic) Hepatitis in the Mediterranean Theater of Operations. I. Studies on Prophylaxis in 2 Epidemics of Infectious Hepatitis. *Ibid* 128: 1062 (Aug 11) 1945.

3d Havens W P Jr and Paul J R. Prevention of Infectious Hepatitis with Gamma Globulin. *Ibid* 129: 270 (Sept. 22) 1945.

4a Cohn E J and others. The Characterization of Protein Fractions of Human Plasma. *J Clin Investigation* 23: 417 1944.

prepared gamma globulin intramuscularly in the opposite arm. This dose of globulin was repeated 40 days later.

Experiment 2—Study of the *in vitro* neutralizing ability of the specially prepared gamma globulin was carried out as follows. Each of four volunteers (group 5) received 4 ml of a 1:100 dilution of infectious serum intramuscularly. Four additional volunteers (group 6) received intramuscularly 4 ml of a mixture of the specially prepared gamma globulin and diluted infectious serum, prepared and incubated as described. The final dilution of infectious serum was 1:100. Finally, each of four volunteers (group 7) received 4 ml of the specially prepared gamma globulin intramuscularly, to demonstrate the presence or absence of homologous serum hepatitis virus in the globulin used.

RESULTS

The results of these experiments are summarized in table 2. It will be seen that cases of hepatitis occurred in all groups of volunteers except group 7, and that, considering the 28 volunteers at risk in the other six groups, the over-all incidence of hepatitis with jaundice was

this result exist. Circulating antibodies after the occurrence of homologous serum hepatitis may exist in some fraction of the plasma other than the gamma globulin fraction. In this connection, it has been demonstrated^{1b} that typhoid O antibodies and antibodies against pneumococci and plague bacilli in animals are found in Cohn's "Fraction III-1." On the other hand, Stokes and his co-workers^{1b} have reported a negative neutralization test when using whole plasma taken from a volunteer two and one-half months after his recovery from experimentally induced homologous serum hepatitis. This would suggest the absence of neutralizing antibodies in the plasma used. Unfortunately, the small volume of data bearing on this point precludes final conclusions. Further examinations of single serums may clarify this possibility.

Antibody may have been present in the gamma globulin used in these studies but may have been inadequate in titer, and the dosage used may have been too small to protect against or neutralize the amounts of virus in the infectious materials employed. The high proportion of volunteers in whom hepatitis developed, and especially the fact that in 50% of those at risk in groups 1, 2, 3,

TABLE 2—Results of Protection and Neutralization Tests in Volunteers

Experiment	Group	No of Volunteers	Inoculum	Hepatitis With Jaundice			Hepatitis Without Jaundice			Total-Hepatitis	
				No	%	Incubation Period Days	No	%	Incubation Period Days	No	%
1 A	1	5	Whole blood 50 ml Intravenously	1	20	69					
	2	6	Whole blood, 50 ml Intravenously GG * 2 ml Intramuscularly twice	4	67	53 53 77 107	0	0	99	4	67
1 B	3	5	Serum 2 ml Intramuscularly	3	60	43 76 89	0	0		3	60
	4	4	Serum 2 ml Intramuscularly GG * 2 ml Intramuscularly twice	2	50	88 91	1	25	66	3	75
2	5	4	1:100 serum 4 ml Intramuscularly	2	50	93 112	2	50	59 92	4	100
	6	4	Mixture of 1:100 serum + GG * 4 ml Intramuscularly	2	50	113 134	1	25	119	3	75
Control	7	4	GG * 4 ml Intramuscularly	0	0		0	0		0	0
Total		32		14	44		5	16		19	59

* Gamma globulin

50%, while that of anicteric hepatitis was 18%. The incubation periods observed were characteristic of homologous serum hepatitis and ranged from 43 to 134 days, with a mean of 86 days.

It is perhaps of some interest that in group 6, in which neutralization was attempted, and in which there were two cases of hepatitis with jaundice and one case of anicteric hepatitis, the incubation periods of all three cases were relatively long, i.e., 113, 119, and 134 days, as compared with the usually shorter incubation periods of the cases in the other groups. It will be noted, however, that one patient in group 2 had an incubation period of 107 days, and one patient in group 5, the group that received diluted infectious serum as the inoculum, had an incubation period of 112 days. Thus, the apparent prolongation of incubation period noted in group 6 may reflect either the natural range of incubation periods with this strain of the virus or may be due merely to dilution of the virus, as used in groups 5 and 6.

COMMENT

The specially prepared gamma globulin, in the dosage used in this study, when employed in both protection and neutralization tests, failed to prevent homologous serum hepatitis in volunteers. Several possible explanations for

4, 5, and 6 hepatitis with jaundice developed, may indicate that high titers of virus were present in the blood and serum used, although this could also reflect the virulence of the strain. On the other hand, it might be expected that dilution of the infectious serum to 1:100 with gamma globulin would, to some extent, reduce this possibility. As noted, the apparent prolongation of the incubation period in group 6 may represent only the natural range of incubation periods with this strain, or an effect due to dilution of the virus, rather than a more favorable ratio between gamma globulin and number of infectious units, with resulting neutralization.

Antibodies may appear in the circulation after recovery from homologous serum hepatitis but may be lost relatively soon, so that plasma pools from persons more than a few months convalescent would not contain high titers. It should be noted that the mean length of convalescence of the donors contributing to the fractionated plasma pool for this study was 47.6 months, however, it should be pointed out in this connection that immunity to this disease may not be solid, even relatively early in convalescence. Thus, Neefe, Stokes, and Gellis,⁷ on re-challenging nine volunteers recently convalescent from experimentally induced homologous serum hepatitis,

found transient mild symptoms and/or laboratory findings "suggestive of transient hepatic disturbance" in five of the nine, although none of these men became jaundiced as a result of the rechallenge. Similar results have been obtained more recently⁸ in volunteers who were five months to six and one-half years convalescent at the time of challenge. On this basis, one might assume, in interpreting the protection against homologous serum hepatitis by normal gamma globulin that has been reported, that, by chance, the plasma pools from which those globulins were prepared contained a relatively high proportion of recent homologous serum hepatitis convalescents. Since such plasma pools may represent 2,000 or more donors, and in view of the relatively low incidence of this disease in the population at large, such a circumstance would appear to be highly improbable.

Homologous serum hepatitis may not cause the production of circulating antibodies in appreciable amounts, and the degree of homologous immunity that has been demonstrated may reflect the presence of fixed tissue antibodies or some other form of tissue resistance. Antibodies against this disease may be altered or destroyed in the fractionation process. This has not been demonstrated in the case of antibodies against other infectious agents and certainly does not appear to occur in the case of infectious hepatitis.

Although the incidence of a blood stream carrier state after apparent recovery from homologous serum hepatitis is unknown, there is evidence⁹ that this may occur after inapparent infection. Thus, the remote possibility exists that if one or several of the contributors to the gamma globulin preparation used in this study had been carriers, the virus might have combined with antibody in the pooled plasma before fractionation, with the result that

the remaining antibody, in the gamma globulin fraction, would have been insufficient to protect or neutralize in the challenge experiments. The apparent absence of homologous serum hepatitis virus from the gamma globulin prepared for this study accords with previous experience,¹⁰ demonstrating the safety of this material as far as contamination with this virus is concerned.

SUMMARY

Gamma globulin prepared from the blood of homologous serum hepatitis convalescents, in the dosage used, did not protect volunteers against the disease after injection with an unknown amount of virus as contained in blood or serum obtained during the early acute stage of illness from other volunteers. Attempts to neutralize the virus in icterogenic serum with this gamma globulin preparation also failed. Explanations for this failure of protection and neutralization are discussed. The gamma globulin used failed, by itself, when administered intramuscularly, to induce viral hepatitis. Of 28 volunteers receiving the Fort Bragg strain of homologous serum hepatitis, virus hepatitis with jaundice developed in 50% and anicteric hepatitis in an additional 18%.

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7 Neefe J R, Stokes J Jr, and Gellis S S. Homologous Serum Hepatitis and Infectious (Epidemic) Hepatitis. Experimental Study of Immunity and Cross Immunity in Volunteers. A Preliminary Report. *Am J M Sc*. 210: 561, 1945. Neefe J R, Gellis S S and Stokes J, Jr. Homologous Serum Hepatitis and Infectious (Epidemic) Hepatitis. Studies in Volunteers Bearing on Immunological and Other Characteristics of Etiological Agents. *Am J Med* 1: 3, 1946.

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10c Hammon W M, Coriell L L, and Stokes J Jr. Evaluation of Red Cross Gamma Globulin as a Prophylactic Agent for Poliomyelitis. Plan of Controlled Field Tests and Results of 1951 Pilot Study in Utah. *J A M A* 150: 739 (Oct. 25) 1952.

SUBSEQUENT CAREERS OF APPLICANTS FOR POSTDOCTORAL MEDICAL RESEARCH FELLOWSHIPS

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In 1922, the Rockefeller Foundation established a program of fellowships in the medical sciences under the administration of the medical fellowship board, National Research Council. Comparable programs in the physical and biological sciences were initiated in 1919 and 1923, respectively, with the support of the foundation. These fellowships were designed to provide experience at the postdoctoral level for persons with promise in research and teaching. It was anticipated that fellows would undertake academic careers and would play an important role in the development of future investigators. Since an adequate number of fellowships has been granted and sufficient time has elapsed to permit analysis, it seems pertinent to evaluate the results of the Rockefeller Foundation-National Research Council medical research fellowship program. A preliminary survey of past fellows and rejected applicants has, therefore, been made for the purpose of comparing the subsequent careers of these two groups.

The following general question formed the basis of the evaluation. Do past fellows differ significantly from

rejected applicants with respect to subsequent success in academic and research work, as indicated by the positions they now hold? From this analysis of the total group of applicants, a supplementary problem arises, i.e., to what extent are the results affected by controlling the following factors: field of interest, nature of doctorate, other fellowships held by rejected applicants, sex, age, and selection ratio? Should the first general question be answered in the affirmative, a second might be asked. To what degree has the method employed produced better results than would have been obtained by use of a chance mechanism?

METHOD AND MATERIAL

During its 30 years of activity, the medical fellowship board has reviewed more than 2,500 applications and has awarded about 450 fellowships. The program was

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restricted during World War II by the dearth of qualified applicants, and data for this period probably are not typical. Since evaluation of awards made since the end of the war should be deferred for several years, this study was limited to the 1,136 persons who applied for fellowships in the medical sciences during the 20-year period 1922 through 1941.

TABLE 1—Comparison of Careers of the Total Groups of Past Fellows and Rejected Applicants

Criterion	Fellows (Total = 265)		Applicants Rejected (Total = 707)		P *
	No	%	No	%	
Listing in American Men of Science	221	83.4	331	46.8	<0.001
Listing in Medical Sciences Information Exchange	114	43.0	137	19.4	<0.001
University appointments	197	74.3	396	56.0	<0.001
Academic positions	110	41.4	180	25.6	<0.001
Professorships	49	18.5	54	7.6	<0.001
Senior academic positions	104	39.3	140	19.8	<0.001
In practice	30	11.3	195	27.6	<0.001
Without concurrent university appointment	15	5.7	118	16.7	<0.001

* P = the probability that a difference of the magnitude indicated would occur as the result of chance factors alone.

Choice of Criteria—After preliminary analysis, several objective criteria were selected. While it was recognized that no one of these alone would be a wholly satisfactory index, it was felt that, taken in combination, they would serve as the best available yardstick for evaluation of the program. These criteria are as follows:

1. Inclusion in "American Men of Science." Since the most recent of these fellowships began in 1941, the youngest fellows completed them six years before the 1949 edition of "American Men of Science" was compiled. It would be anticipated, therefore, that the entire group would have had an opportunity to attain the recognition implied by inclusion in this volume.
2. Listing by the Medical Sciences Information Exchange. The Medical Sciences Information Exchange was established in 1946 by the U. S. Public Health Service and was transferred to the National Research Council in 1950. At the present time, its records include data concerning research grants awarded since 1946 by the six government agencies concerned with medical and biological research and by about 50 private foundations operating in these fields. This record was consulted to determine the proportion of fellows and rejected applicants who were principal investigators under the grants.
3. University Positions. This category includes all persons holding part-time or full-time clinical or academic appointments. The group in university work also was analyzed in terms of the following more specific categories: (a) academic positions, this category is limited to full-time university appointments, and clinical positions have been eliminated; (b) professorships, this includes only full-time academic appointments; (c) senior academic positions, consisting of full-time academic appointments as deans, heads of departments, professors, and associate professors.
4. Private Practice. This negative criterion was analyzed in terms of the proportions of the two groups in

full-time practice regardless of whether they held other appointments as well. Those in practice without concurrent university appointments were included in this category and also were analyzed separately.

Sources of Data—A major portion of the data was obtained by means of a questionnaire sent to the 1,136 persons included in the survey. Information from this source was supplemented by data from the files of the fellowship board and, as indicated, from "American Men of Science" and the Medical Sciences Information Exchange.

Statistical Method—Past fellows and rejected applicants were compared with respect to the criteria listed by determining the significance of the difference between the proportions of each group falling in a given category. The technique recommended by McNemar¹ for dealing with the difference between independent proportions was followed. Yates' correction was applied to all computations. For purposes of this analysis, a probability level of 0.01 or less was accepted as representing a significant difference; however, probability values ranging between 0.001 and 0.05 are reported for the information of those holding more or less rigorous views.

In an attempt to determine the degree to which the method employed has been more effective than a chance mechanism, a procedure has been devised for estimating its efficiency. The number of fellows who would have been expected to appear in each criterion category as a result of the use of a chance mechanism was computed. Using this expected frequency as a base line, the increase achieved by the present method was determined as well as the maximum increase possible had a perfect method been available. The ratio of the actual to the potential increase, expressed in percentages, was defined as an "index of efficiency." This index provides a measure of performance that is not dependent on the number of cases involved, whereas the probability levels are influenced by the size of the sample as well as the effectiveness of the program.

TABLE 2—Comparison of Careers of Past Fellows and Rejected Applicants Now Working in Preclinical Fields

Criterion	Fellows (Total = 124)		Applicants Rejected (Total = 207)		P
	No	%	No	%	
Listing in American Men of Science	117	94.4	205	79.8	<0.001
Listing in Medical Sciences Information Exchange	65	52.4	79	30.7	<0.001
University appointments	92	74.2	150	58.4	<0.01
Academic positions	79	63.7	131	51.0	<0.05
Professorships	29	23.4	38	14.8	>0.05
Senior academic positions	70	56.5	99	38.5	<0.01

RESULTS

Of the 1,136 persons to whom the questionnaire was sent, 998 (87.9%) replied. Questionnaires were returned by 265 (97.1%) of the 273 past fellows, 707 (84.6%) of the 836 whose applications were not successful, and 26 (96.3%) of the 27 who did not accept the appointments offered them.

Total Group—The results obtained by comparing the careers of all past fellows with those of all rejected appli-

cants are shown in table 1. The data indicate that, for each of the eight criteria, the differences between the two groups are highly significant. Moreover, these differences all suggest that past fellows have surpassed rejected candidates with respect to these indexes. Analysis of the universities in which the two groups hold positions indicates that both fellows and rejected candidates have

TABLE 3—Comparison of Careers of Past Applicants* Working in the Preclinical Field and Those in the Clinical Field†

Criterion	Preclinical (Total = 381)		Clinical (Total = 571)		P
	No	%	No	%	
Listing in American Men of Science	322	84.5	218	38.2	<0.001
Listing in Medical Sciences Information Exchange	144	37.8	103	18.0	<0.001
University appointments	212	63.5	317	60.8	>0.05
Academic positions	210	55.1	89	15.6	<0.001
Professorships	67	17.6	33	6.1	<0.001
Senior academic positions	109	44.3	74	13.0	<0.001

* Includes both fellows and rejected applicants.

† The interests of 20 past applicants could not be categorized as clinical or preclinical on the basis of the information submitted. Most of these were engaged in administrative work or had retired.

obtained positions in the major universities in this country.

Field of Interest—The sample was dichotomized on the basis of whether the major field of interest was clinical or preclinical. The clinical group included 136 fellows and 435 rejected applicants, while 124 and 257, respectively, were classified as preclinical. When fellows and rejected candidates in the clinical area were compared, the results were essentially the same as those for the total group, with all probability values falling below 0.001. Table 2 indicates that the pattern for the group with preclinical interest differs in certain respects from that for the total group, especially in the analysis of academic positions and full-time professorships. Failure to find highly significant differences between fellows and rejected applicants for these two criteria is associated with a relatively high standing for the combined groups in the preclinical as compared with the clinical field. Table 3 compares the total clinical and preclinical groups and indicates differences of a high order of significance for five of the six indexes.

Individual Fields—The pattern for the field of medicine resembles that for the entire group and for the clinical field, with two exceptions. The difference between the proportion of fellows and rejected applicants holding full-time academic positions is not highly significant, and the difference between the proportions of the two groups in full-time practice is significant only at the 0.02 level of confidence. In the field of surgery, most of the obtained differences are significant at the 0.01 rather than the 0.001 level. The pattern for the surgical group differs considerably from that for the clinical group only in the failure to show a true difference between the proportions of fellows and rejected applicants engaged in practice.

In the preclinical fields of biochemistry, pathology, and physiology, the established criteria did not distinguish between the two groups with any degree of consistency. There were no highly significant differences in biochemistry or physiology, although a few were found

to be significant at the 0.02 or 0.05 level of confidence. In pathology, differences significant at the 0.01 level or above were obtained for three of the indexes (inclusion in "American Men of Science," listing in Medical Sciences Information Exchange, and senior academic positions). The trend away from true differences between fellows and rejected applicants, indicated in table 2 for the preclinical group, thus is intensified when this area is divided into separate disciplines.

Doctorates—The survey included 151 fellows and 402 rejected applicants who hold the M.D. and no other doctoral degree. There were 65 fellows and 199 rejected applicants holding only the doctorate in the basic sciences. These two groups were analyzed separately. The pattern for the M.D. category was comparable to that obtained for the clinical breakdown. Differences between past fellows and rejected applicants were significant at the 0.001 level for all criteria. When past fellows and rejected applicants holding only the doctorate in the basic sciences were compared, the difference in the proportion listed in "American Men of Science" was found to be significant at the 0.02 level. All other probability values were greater than 0.05. Thus, the results for this group resemble those for the preclinical fields of biochemistry and physiology.

Fellowships Under Other Auspices—Seventy-one past fellows and 274 rejected applicants reported that they had held fellowships under other auspices. The rejected applicants who had held such fellowships were compared with those who had not, the results are shown in table 4. A larger proportion of those who had held other fellowships were listed by the Medical Sciences Information Exchange, and the difference was significant at the 0.01 level. No other significant differences were found. Table 5 compares the rejected applicants who had held other awards with the total group of past fellows.

TABLE 4—Comparison of Careers of Rejected Applicants Who Held Fellowships Under Other Auspices and Those Who Did Not

Criterion	Held Other Fellowships (Total = 274)		Held No Other Fellowships (Total = 433)		P
	No	%	No	%	
Listing in American Men of Science	136	49.6	183	42.0	>0.05
Listing in Medical Sciences Information Exchange	67	24.4	70	16.2	<0.01
University appointments	168	61.3	228	52.7	<0.05
Academic positions	81	29.6	104	24.0	>0.05
Professorships	22	8.0	32	7.4	>0.05
Senior academic positions	61	22.3	79	18.2	>0.05
In practice	74	27.0	121	27.9	>0.05
Without concurrent university appointment	38	13.9	80	18.5	>0.05

The differences between these two groups were significant in every criterion category, providing a clear-cut contrast to the results in table 4.

Age and Sex—Women constituted less than 8% of the sample surveyed. Their elimination from the total group did not alter essentially the results shown in table 1. The mean age of past fellows was 50.20 years (standard deviation = 6.49), and that of rejected applicants was 48.08 (standard deviation = 6.74). This difference in ages is significant at the 0.001 level of con-

fidence To hold constant the factor of age, a sample was selected in the following manner Within each three year age group, cards were chosen on a random-sampling basis in the ratio of three rejected applicants to one fellow In the sample thus selected, there were 207 fellows and 620 rejected applicants The mean age for fellows was 48.91 (standard deviation = 6.56) and for

TABLE 5—Comparison of Careers of the Total Group of Past Fellows with Those of Rejected Applicants Who Held Fellowships Under Other Auspices

Criterion	Fellows (Total = 205)		Rejected Applicants Who Held Other Fellowships (Total = 274)		P
	No	%	No	%	
Listing in American Men of Science	221	83.4	136	49.6	<0.001
Listing in Medical Sciences Information Exchange	114	43.0	67	24.5	<0.001
University appointments	197	74.3	168	61.3	<0.01
Academic positions	115	43.4	81	29.6	<0.01
Professorships	49	18.5	22	8.0	<0.001
Senior academic positions	104	39.3	61	22.3	<0.001
In Practice	35	13.2	74	27.0	<0.001
Without concurrent university appointment	15	5.7	38	13.9	<0.01

the others, 48.80 (standard deviation = 6.54) When this group was analyzed it was found that differences were significant at the 0.001 level for all criteria

Selection Ratio—The selection ratio was about five to one in the second decade of the program as compared with two to one in the first decade The two decades were analyzed separately, and in both instances significant differences between past fellows and rejected applicants were found for all indexes The difference in selection ratio was not accompanied by significant change in the relative status of fellows and rejected candidates with respect to the criteria, however, 53.9% of those who held fellowships in the second decade are listed in the Medical Sciences Information Exchange as compared with 36.2% of the fellows in the first decade This difference is significant at the 0.01 level of confidence

Indexes of Efficiency—In accordance with the procedure described previously, indexes of efficiency were computed for the total group, the preclinical group, and the five fields analyzed The results appear in table 6 The indexes for the total group show considerable variation from one criterion to another Apparently the method operated with an efficiency of 61.6% if listing in "American Men of Science" is used as the criterion of success It was somewhat less effective in selection and development of men who would resist the temptation to enter full-time practice With respect to full-time academic work, its efficiency was only 18.1% The efficiency indexes for the preclinical group follow the same pattern, with one exception When the criterion of number of professors is used, a somewhat lower efficiency is indicated in the preclinical area as compared with the total group In the analysis of individual fields, indexes of efficiency in general are higher for the clinical fields of medicine and surgery than for biochemistry and physiology in the preclinical area More specifically, somewhat higher indexes are found for surgery than for medicine The widest deviation occurs in the analysis

of academic positions, with an index of 15% in medicine and 60% in surgery Pathology tends to follow the pattern of the clinical fields, with relatively high indexes of efficiency for all criteria

IMPLICATIONS OF RESULTS

Conclusions must be drawn with caution on the basis of a survey of this nature While the sample is large and the criteria employed are objective, it is clear that additional study is needed Moreover, development of more discriminating criteria of "success" in the fields of scientific research and academic work is a major prerequisite for such investigation In the meantime, certain trends and implications emerge from the data at hand It appears, for example, that the persons who received fellowships during the first 20 years of this program were, as a group, more "successful" than those who were rejected during that period with respect to the criteria selected To the extent that these indexes reflect the purpose of the fellowships, there are indications that the program has been effective in selecting personnel with potentialities for leadership in medical investigation and teaching and in affording opportunity for development along these lines The implications are the same and are equally clear-cut when the past fellows and rejected candidates working in the clinical area are compared The pattern for the specific fields of medicine and surgery is sufficiently similar to that for the clinical group as a whole to reinforce the inference that the program in this area has, in some degree at least, achieved its goal

This conclusion is not wholly justified for the preclinical field on the basis of the evidence at hand There are true differences for the entire preclinical group on four of the six pertinent criteria, and the indexes of efficiency follow the pattern for the total group for all except one of the criteria No highly significant differences were found, however, between fellows and rejected applicants working in physiology and biochemistry, and there are indications that the program operated with less effectiveness in

TABLE 6—Indexes of Efficiency

Criterion	Total Group %	Pre-clinical %	Medicine %	Surgery %	Biochemistry %	Pathology %	Physiology %
Listing in American Men of Science	61.6	63.6	59.0	58.0	44.8	79.6	60.7
Listing in Medical Sciences Information Exchange	25.0	23.6	24.1	33.2	18.2	42.3	22.6
University appointments	34.2	29.3	53.6	60.2	29.1	40.1	31.9
Academic positions	18.1	19.1	15.0	60.0	16.8	32.6	10.2
Professorships	27.9	16.9	46.0	77.3	21.4	51.1	29.8
Senior academic positions	21.1	21.7	23.3	60.0	19.5	37.9	18.0
In practice	44.2	37.3	37.3	36.9	48.7	100.0	0.0
Without concurrent university appointment	58.6		72.4	40.6	10.7	100.0	0.0

these two fields than in the specific clinical fields analyzed The contrast is even sharper when the group holding only the M.D. degree is compared with that holding only the doctorate in the preclinical sciences These facts would not, on the other hand, justify the inference that the selection program has been unsuccessful in the preclinical sector The percentages of past fellows exceed those of rejected candidates for all of the six pertinent criteria, not only for the preclinical area as a whole but for the individual fields analyzed The trend is clear, even

though the differences are not consistently large enough to be statistically significant. Moreover, the total pre-clinical group (including all applicants) surpasses the combined group in the clinical field on five of the six criteria.

Some conjectures may be advanced concerning the reasons for these differences between the clinical and pre-clinical groups. Men with clinical training have ample opportunity to leave the academic field, either to enter private practice or to accept positions in hospitals or other organizations. For the most part, financial rewards are substantially greater if they choose the latter course. This is not true of the preclinical group, a majority of whom do not hold the M.D. degree. While there is opportunity in government and industry, the number of such positions is limited in comparison with the academic appointments available to these men. It may be that in the past industrial and governmental positions have not held as much appeal for this group as have academic careers. In any case, applicants in the preclinical fields appear to have remained in research and academic work to a greater extent than those in the clinical fields. These considerations further emphasize the fact that the criteria selected are not adequate indexes of "success" in the preclinical field. Conclusive evidence as to whether differences exist between past fellows and rejected applicants in such fields as physiology and biochemistry can be obtained only when more effective criteria have been established.

It will be recalled that rejected applicants who had held other fellowships differed from those who had not with respect to only one criterion, while significant differences were found for all criteria when past fellows were compared with rejected candidates who had held other fellowships. Assuming that the questionnaire data regarding other awards are accurate, they were comparable to National Research Council fellowships in that they were on the postdoctoral level and offered opportunity for full-time research experience. A major portion of these other fellowships were, however, supported by local universities or hospitals and cannot be considered comparable in this sense. The data indicate, then, that the results of this program compare favorably with those of the other agencies that supported the fellowship awards made to the 274 rejected candidates. No conclusion is warranted as to the relative outcomes of this and other national programs.

The evidence, for the most part, supports the view that the comparative status of the two categories with respect to the various criteria is not related to age. The pattern of results was unchanged when the groups were equalized as to age. The difference in the percentage of fellows listed in the Medical Sciences Information Exchange in the first and second decades suggests the possibility that, for fellows, an inverse relationship may exist between age and the likelihood of holding a research grant. It is equally possible that this difference may be a function of selection ratio.

Three possible reasons may be advanced for the differences found in favor of the past fellows. 1. The selection process has been effective. 2. The opportunity provided by the fellowship has been valuable. 3. The

prestige of holding a National Research Fellowship was a contributing factor. It is impossible to separate the effects of these factors, but certain rough indications of their relative importance may be noted. It probably is correct to assume that the control group who held other fellowships had an opportunity for research experience somewhat comparable to that offered the Council's fellows. The fact that they differed on all criteria from past fellows and only on one criterion from other rejected applicants might be construed as an indication that the fellowship experience is not wholly responsible for the obtained differences and that effective methods of selection and/or the prestige of the Council's program have played a part. Since details are lacking concerning the administration and nature of the opportunity offered by the other programs, this is advanced merely as a conjecture.

A second control group is available, consisting of the 26 persons who were offered fellowships but did not accept the awards. No significant differences were obtained when this group was compared with past fellows or with rejected applicants, however, when the obtained frequencies and percentages for these persons are compared with the data in table 1, the percentages for this small group fall between those for past fellows and rejected applicants in each criterion category. No conclusions can be drawn in the absence of statistical evidence. Nevertheless, if this trend were corroborated by future research when a larger control group is available, it would indicate that both the value of the fellowship experience (possibly in combination with its prestige) and the effectiveness of the selection techniques are associated with the observed differences between the two major groups.

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Drug Addiction.—The many investigations of the past two years indicate an upward trend in drug addiction, predominantly among the younger members of urban populations.

Informed sources now are of the opinion that the crest of the wave has passed and that increased facilities for vigorous law enforcement are bringing about a downward trend. No one can say with definiteness how many addicts there are today in the United States (one conservative estimate is 1 in 3,000 of our population), but whatever the figure, an established addiction is like a contagious disease and the more our attitude toward and handling of addiction approximates our attitude toward and handling of recognized contagious diseases the better will be our understanding and control of addiction. Physicians can do much to foster this attitude and handling by keeping themselves thoroughly informed of the characteristics and recognition of addictions, including addiction to the barbiturates and to the new potent analgesics, all of which unfortunately have shown addiction liability and some of which already have appeared in illegitimate narcotic traffic. Physicians can help, too, by an informed attitude toward the handling of an addict and by their constant urging of local facilities for the treatment of addiction. Physicians cannot supply drugs to addicts simply to maintain their addiction and the advocated establishment of government clinics for the purpose has been tried and failed. Adequate quarantine and institutional treatment is the best line of attack and this means not only treatment during the acute phase of withdrawal but, even more importantly, prolonged rehabilitative treatment directed toward adjustment of the individual to his environment so that he does not have to seek escape again with drugs.—N. B. Eddy, M.D., Foreward, Symposium on Drug Addiction, *The American Journal of Medicine*, May, 1953.

CLINICAL NOTES

DANGER OF FISH LENS PROTEIN INJECTION AS TREATMENT FOR CATARACT

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The currently much-publicized use of fish lens protein injections as a treatment for cataract¹ has aroused great interest in the lay public and the medical profession both here and abroad. Lens protein from various sources, administered orally or by injection, has been used by numerous investigators in the therapy of cataract, but the arrest or cure of cataracts so treated has never been proved.²

The antigenic properties of lens protein are well known, and the occurrence of the clinical entity endophthalmitis phacoanaphylactica, described by Verhoeff and Lemoine in 1922,³ although debated for many years, has now achieved wide acceptance.⁴ Kirby^{5b} has cited the danger of sensitization to lens protein inherent in such methods of treatment, and recently Posner⁵ reported the case of a patient in whom uveitis developed after receiving a four months' course of fish lens protein injections for cataract. This subsided after an intracapsular cataract extraction. He warned that in patients known to have received such therapy every effort must be made to do an intracapsular extraction.

The following case reports are important because they are additional examples of the development of uveitis in the course of fish lens protein injections. In the first and second patients uveitis developed bilaterally, and in the first bilateral secondary glaucoma developed. The first case also points up the good result obtained by intracapsular cataract extractions plus corticotropin and cortisone therapy. Furthermore, in the first case hypersensitivity of the patient to her own lens protein was shown by skin tests. In the third patient, uveitis immediately followed an extracapsular extraction.

REPORT OF CASES

CASE 1—A 55-year-old white woman became aware of failing vision in June, 1952, and was told by an ophthalmologist that she had cataracts, the one in the left eye being more advanced. In July, 1952, she began a course of fish lens

protein injections, which were given three times a week for about four and one half months, after which this treatment was temporarily stopped. Several weeks later, her left eye became inflamed and painful. The physician who had given her the injections referred her to an ophthalmologist, who told her she had uveitis and glaucoma. He prescribed cortisone drops, which the patient used for about one month. Several weeks before she came to my office, her right eye also became inflamed. Vision rapidly decreased, until, two days before her visit, she realized it was almost gone. Results of an examination made Feb. 28, 1953, were as follows:

Vision

Right eye—counts fingers at one foot

Left eye—light perception

Right Eye

Conjunctiva—hyperemia and ciliary injection

Cornea—epithelial edema folds in the lamina elastica posterior (Descemet's membrane) many gray keratic precipitates and pigment particles

Anterior chamber—deep minimal aqueous flare a few floating cells

Pupil—small but dilated to 4 mm, much iris pigment on the lens capsule

Lens—nuclear and cortical cataract moderately advanced

Fundus—not seen

Left Eye

Conjunctiva—slight injection

Cornea—clear

Anterior chamber—deep a few cells flare minimal

Pupil—small no synechiae

Lens—mature cataract, solid white appearance

Fundus—not seen

Visual Fields

Full to light and hand movements

Ocular Tension

Right eye—38 mm Hg Schiøtz

Left eye—48 mm Hg Schiøtz

After moderate pupillary dilatation with 10% phenylephrine hydrochloride and epinephrine hydrochloride in 1:1,000 dilution, the ocular tension remained the same. With 2% pilocarpine hydrochloride, however, the tension of the left eye was reduced to 34 mm Hg. The hourly use of 2½% cortisone acetate drops was prescribed. After two days the tension was 34/34 mm Hg, and the patient was hospitalized March 4, 1953. Tension in the left eye remained well controlled, but in the right eye fluctuated widely. On March 6, a combined intracapsular extraction was done on the left eye. Three 6-0 chromic absorbable surgical corneoscleral sutures were placed. On the evening before the operation, 75 mg of corticotropin had been given intramuscularly. Cortisone ointment was instilled postoperatively at the time of daily wound dressing. On the fourth postoperative day, the tension in the right eye was 55 mm, and it did not respond to the use of miotics or mydriatics. Therefore, a combined intracapsular extraction was performed on the right eye. Corticotropin was given intramuscularly daily for a week, and cortisone ointment was instilled when dressings were changed. Despite the hypertension and uveitis, the operative procedures and the postoperative course were completely uneventful. The tension was immediately normalized, and the eyes became white within two weeks. The patient was discharged March 22, 1953. Final corrected vision in each eye is 20/20.

CASE 2—A 44-year-old white man has severe myopia and complicated cataracts, consisting chiefly of posterior cortical rosettes, in each eye. In May, 1952, visual acuity was 20/50 in each eye. The patient was next seen on Feb. 5, 1953, when he complained of pain in the left eye and photophobia in the right. A positive aqueous flare and cells were present in both eyes. Vision was 20/70 in each eye. The anterior chambers were deep. The use of cortisone drops and ointment was prescribed. On March 6, 1953, the flare and cells were still present in the left eye and, to a lesser extent, in the right eye. When last seen, April 2, 1953, the patient's visual acuity was 20/100 in each eye and the cataracts had increased in size and density. At this point the patient admitted that since October, 1952, he had received about 40 injections of fish lens protein. After the 30th injection, pain and photophobia developed in the left eye. The patient attributed this to dental complications, and, after a brief lapse, received 10 more injections. Vision had then definitely decreased, prompting his visit of February, 1953, described above.

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Case 2 is reported with the permission of Dr. I. S. Edelstein and case 3 with the permission of Dr. Wendell L. Hughes.

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5. Posner A. (a) Endophthalmitis Phacoanaphylactica Induced by Injections of Lens Protein. Notes on Ophthalmology. Eye, Ear, Nose & Throat Month 32: 42, 1953. (b) Complications Following Injection of Fish Lens Protein for Cataract. Correspondence J. A. M. A. 151: 317 (Jan. 24) 1953.

CASE 3—A 59 year-old white man was first seen Sept 26, 1952. He had a cataract in the right eye, consisting of moderately advanced, posterior subcapsular and cortical opacities, with vision of 20/200. The left eye showed early cortical changes, with vision of 20/30. A week previously, the patient had begun taking fish lens injections. He received 34 injections over a three month period. On Nov 28, 1952, the cataract in the right eye showed complete maturity. The left lens showed progressing cortical opacities. The rapidity of maturation of cataract in the right eye was striking. In January, 1953, an extracapsular extraction was performed on the right eye. The eye remained congested, and numerous mutton fat keratic precipitates appeared. With foreign protein injections and topical administration of cortisone the uveitis has diminished. A secondary membrane is present, and corrected vision is 20/30.

COMMENT

Shropshire,⁶ in 1937, in a completely undocumented article, propounded the value of fish lens protein in the treatment of cataract. He quoted Hektoen (no source cited) as stating, "an animal sensitized with mammalian lens protein gave a positive precipitin reaction with the extracts of lenticular protein of all the living organisms tested except fish. In animals sensitized with extracts of fish lens protein a markedly positive reaction was obtained with the lenticular protein of all the species of fish tested but with no other available type of lenticular protein." This is incorrect, for Hektoen and Schulhof,⁷ in 1924, apparently the source cited, actually made the following statement: "Injecting rabbits with solutions of Menhaden lens induces the formation of precipitins for the lens of this and other salt water fish. At the same time but not nearly in the same concentration, precipitins for beef, human, rabbit and swine lens are called forth. Serum against beef, human or swine lens also contains small amounts of precipitin for Menhaden lens. While the fish lens contains antigenic elements of the same kind as the mammalian lens, it also contains antigenic elements that are different and specific for fish. As the serum against Menhaden reacts with beef and swine crystallins and anticycrallin serum may react with Menhaden lens, it seems that these crystallins constitute at least a part of the element common to both fish and mammalian lens." Hence, fish lens may not only elicit antibodies for human lens but also may induce sensitivity to fish itself, a notoriously allergenic material. In addition, according to Burky,⁸ should bacterial contamination of the lens protein occur or should a focus of infection exist in the body, a great increase in antibody formation would be expected.

Human hypersensitivity to lens protein has been adequately shown to occur.⁹ Tissue specificity, rather than species specificity, a characteristic of all lenses studied, is based on common protein constituents. Thus, it is to be expected that man may be sensitized by fish lens injections to all lens protein, including that of his own lens.

The uveitis and secondary glaucoma that appeared during fish lens injections in the patient in case 1 could not be adequately controlled by medical measures. Since it seemed probable that an induced antigen-antibody reaction was occurring through the intact capsule of the patient's lens, removal of the source of antigen, the lens, appeared necessary, despite the unpleasant complications. The use of corticotropin and cortisone to allay the inflammation appeared to be a wise measure. It also constituted a precaution against severe phacoanaphylaxis

should extracapsular extraction have occurred inadvertently. There was no delay in healing. The visual result is excellent (20/20 in each eye), the eyes are quiet, there is no trace of inflammation, and the tension is normal. To test the sensitivity hypothesis, the patient's own lens was employed as an antigen, since commercial preparations of lens protein are not available. The lens was expressed from its capsule and triturated in 2 cc of isotonic sodium chloride solution with 2 drops of dilute thimerosal (Merthiolate) added. The resulting solution was tested for sterility. Prior to the second cataract extraction, an intradermal injection of 0.05 cc of the antigen solution produced a pronounced erythema and wheal, appearing within 20 minutes and lasting about two hours. A control injection of 0.05 cc of the sodium chloride solution and thimerosal diluent produced a slight wheal without erythema. Repetition of the test three weeks later gave similar results. The antigen and control solutions were similarly administered to 11 patients with various ophthalmic conditions (7 with cataract, 2 with glaucoma, 1 with retinal detachment, 1 with enucleation, and 1 who had had a plastic operation on the lid). None showed more than slight whealing with both the antigen and control solutions.

The occurrence of uveitis during fish lens injections in the patient in case 2 makes it the third such case known to me. The sequence of events is characteristic. Many more instances will doubtless come to light. The reluctance of the patient to tell all the facts points up the importance of obtaining a reliable history, for on this, as Posner has noted, may depend the patient's visual outcome. The value of skin testing for lens protein sensitivity is now evident. Lens antigens may be readily prepared from human or animal sources according to the method described above or by the method of Verhoeff and Lemoine.³

Case 3 is an illustration of the typical phacoanaphylactic uveitis produced by the liberation of lens protein in the eye of a patient sensitized by the fish lens injections. The outcome in this case must be considered fortunate. Severer reactions may be anticipated in other patients, perhaps with loss of the eye. So far as these cases show, fish lens protein was of no therapeutic value, the cataracts matured rapidly. Moreover, definite harm was done.

SUMMARY AND CONCLUSIONS

Promiscuous use of fish lens protein in the therapy of cataract is a dangerous procedure that may induce a state of hypersensitivity. This may be manifested in the development of uveitis due to an antigen-antibody reaction with the patient's own lens, and secondary glaucoma may also occur. Rapid maturation of cataracts has occurred during fish lens protein treatment. These complications necessitate cataract extraction, despite the additional hazards. Corticotropin and cortisone are valuable adjuncts in the management of such complicated cataracts. Patients subjected to fish lens therapy

6 Shropshire R F. Fish Lens Protein and Cataract. I. Therapeutic Value. *Arch Ophth* 17: 505 (March) 1937, 2. Chemical Studies. *ibid* 17: 508 (March) 1937.

7 Hektoen L and Schulhof K. Lens Precipitins. Antigenic Properties of Alpha and Beta Crystallins. *J Infect Dis* 34: 433 1924.

8 Burky E. L. Experimental Endophthalmitis Phaco-Anaphylactica in Rabbits. *Arch Ophth* 12: 536 (Oct.) 1934.

9 Woods J C, Irvine and Irvine.⁴

are potential victims of endophthalmitis phacoanaphylactica. The importance of intracapsular cataract extraction in such patients should be widely publicized, since many will undoubtedly come to surgery. Skin testing for sensitivity to lens protein provides valuable diagnostic information.

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RENAL VEIN THROMBOSIS IN INFANTS

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In clinical practice, thrombosis of the renal vein is rare, but, when encountered, it requires prompt urologic evaluation. The diagnosis has been established most frequently at operation or autopsy, and it was not until 1942 that the first preoperative diagnosis of renal vein thrombosis was confirmed at operation by Campbell.¹ With the modern facilities now available to the urologist, the correct diagnosis should be easier to make. Two instances of thrombosis of the renal veins are presented here to re-emphasize the importance of a correct preoperative diagnosis.

Thrombosis of the renal vein occurring in infancy is usually of the primary type, the thrombotic process arises in the renal vein or in its intrarenal tributaries. In 1945, Abeshouse² reviewed 228 cases of renal vein thrombosis and found that 98 of those cases were in children less than one year old and, that, of this total, 90 occurred in infants during the first two months of life. A secondary type, resulting from a direct extension of a thrombosis in the vena cava or extrarenal branches of the renal vein, occurs more frequently in adults. Since this communication reports two cases of renal vein thrombosis in infants, our discussion will be limited to the primary type.

The literature is replete with factors that may cause primary thrombosis of the renal vein. Among the main predisposing causes suggested are ileocolitis and associated dehydration, sepsis, omphalitis, and focal infection. The relationship of these factors to the cases being presented will be discussed later. The signs and symptoms of renal vein thrombosis are usually flank pain, a palpable abdominal mass, hematuria, albuminuria, pyuria, anorexia, leukocytosis, and fever. Although not present in our cases, cylinduria is said to occur, as well as diarrhea, constipation, overwhelming sepsis, oliguria, or even anuria. A diagnosis of renal tumor or hydronephrosis is compatible with the above-mentioned symptom complex, and this, in the past, has probably led to many incorrect diagnoses. The possibility of renal vein thrombosis should be given full consideration in any distressed infant who has a palpable abdominal mass and hematuria. With the

use of intravenous urography and retrograde pyelography, sufficient data in most cases can be obtained to establish a correct diagnosis.

If clinical evaluation indicates a unilateral thrombosis of the renal vein surgical intervention is mandatory. The preoperative care consists of general supportive measures, such as blood transfusions, correction of electrolyte imbalances, and the use of antibiotics if indicated. When the prothrombin time is abnormally low, the use of vitamin K is helpful. The treatment of choice is nephrectomy through a lumbar approach. The suggested use of anticoagulant therapy has its disadvantages if an operative procedure is contemplated, but, when the clinical findings indicate a bilateral renal vein thrombosis, anticoagulant therapy becomes of prime importance.

REPORT OF CASES

CASE 1—A male infant was born on Sept 10, 1948. The baby was full term and was delivered from a left occiput transverse position with low forceps. The mother was 30 years old, and this was her first pregnancy. There were no complications of pregnancy or delivery, although the mother had arrested tuberculosis. The first stage of labor lasted six and one half hours, the second stage lasted 58 minutes. At birth the child weighed 7 lb 11 oz. (3,487 gm), and the physical examination revealed no abnormalities. The postnatal course was satisfactory until Sept 19, 1948, the ninth day of life, when projectile vomiting occurred. The next morning the baby again vomited. On physical examination at that time the baby was uncomfortable and in some distress. The abdomen was tender and moderately distended. On careful palpation, a mass that measured approximately 9 by 4 cm could be felt in the left flank in the general area of the left kidney. A specimen of urine was obtained that, on examination, revealed innumerable red blood cells, 4+ albumin, but no casts or white blood cells. Urine studies repeated over the next four days showed a decrease in albumin and in red blood cells, but a definite pyuria had developed. With 20 to 30 white blood cells per high power field. Blood studies on Sept 20, 1948, showed a hemoglobin level of 101% (15.5 gm, Haden), red blood cells, 4,660,000, white blood cells, 17,400, and blood urea 52 mg. per 100 cc. Clotting and bleeding times were normal. Two days after the onset of symptoms, intravenous urograms were obtained, but there was no visualization of the dye in either the right or the left kidney. Three days later, more urograms were made, and no dye was seen to come from the left kidney, although some secretion was evident from the right kidney. Unfortunately, retrograde pyelograms were not obtained.

On Sept 27, 1948, one week after the onset of symptoms, surgical exploration was undertaken with a preoperative diagnosis of Wilm's tumor. For this reason a transperitoneal approach was chosen. With the patient under general anesthesia, a left rectus incision was made from the costal margin to below the umbilicus. The surfaces of the peritoneum were found to be smooth with no excess fluid present. The small intestines were delivered onto a warm laparotomy pad, and the transverse and descending colon were exposed. Through the posterior peritoneum, a rather large mass was evident. To gain added exposure a "T" extension of the rectus incision was made laterally. The descending colon was then reflected mesially, and the posterior peritoneum was incised and dissected from the renal mass. No perirenal hemorrhage was noted. The renal mass was dark red and strongly suggestive of tumor tissue. The pedicle was then doubly clamped and transected and the kidney removed. Chromic surgical sutures were employed to secure the pedicle. The small intestines were replaced and the incision closed in layers with continuous absorbable sutures. During the operation, the patient received a blood transfusion. He was returned to the ward in good condition.

The pathology report described a kidney measuring 6 by 4 by 4 cm. The fecal lobulations were prominent. The mass of kidney tissue was soft and deep red. On section, the pelvis was found to be filled with old blood. The renal vein contained a large, firm blood clot. The kidney tissue was hemorrhagic.

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Drs. T. J. Humphries and G. G. Gooch III gave permission for the report of case 2.

1. Campbell M. F. and Matthews W. F. *Renal Thrombosis in Infants: Report of Two Cases in Male Infants Urologically Examined and Cured by Nephrectomy at 13 and 33 Days of Age*. *J. Pediat.* 20: 604, 1942.

2. Abeshouse B. S. *Thrombosis and Thrombophlebitis of the Renal Veins*. *Urol. & Cutan. Rev.* 49: 661, 1945.

throughout, and no normal renal tissue was evident. Microscopic examination showed, in all portions, considerable destruction of renal tissue and marked engorgement with blood. In only a few regions of the cortex could any normal renal tissue be found. Inflammatory infiltration was evident in the form of polymorphonuclear leukocytes, lymphocytes, and plasma cells. Based on these findings, the diagnosis was extensive thrombosis of renal vein and hemorrhagic infarction of the kidney.

The postoperative course was uncomplicated, and the child was discharged on the 38th day in good condition and above his birth weight. After his discharge from the hospital, the patient did well and was examined at monthly intervals. On April 26, 1950, where the patient was 19 months old, acute intestinal obstruction developed. Two days later, he was brought to the hospital in a moribund state and died eight hours later. Autopsy showed extensive fibrous adhesions around the old operative site in which the small intestines were involved with mechanical obstruction to the ileum.

CASE 2—This patient was a white male infant born on Sept 15, 1951. The child's mother was a nurse, and her pregnancy was considered normal. At the time of labor, the mother's membranes were ruptured surgically. Three and one half hours after rupture of the membranes, the infant was delivered with outlet forceps while the mother was under saddle block anesthesia. The baby voided in the delivery room, but no notation was made of the character of the urine. Physical examination carried out approximately 12 hours after birth revealed an apparently normal, although slightly premature male infant. There was a small bruise on his right ear and cheek from the application of forceps. His birth weight was 5 lb 9 oz. (2,524 gm). A notation was made in the nurse's notes approximately 24 hours after delivery stating that the diaper was stained red. Forty-eight hours after delivery, the same observation was made twice by the nurse, and examination of a voided urine specimen revealed innumerable red blood cells. Four days after delivery, the baby was circumcised, and, at that time, a palpable mass was noted in the right flank. The baby appeared to be toxic, he ate poorly, and progressive weight loss was noted. Eight days after delivery, oxytetracycline (Terramycin) medication was started, but no change was noted in the urinary findings. Ten days after delivery, intravenous urograms were obtained that revealed a good concentration of the dye in the left kidney, which was considered to be normal. There was no evidence of any excretion of the dye in the right kidney. There was a large, soft tissue shadow occupying a great portion of the right side of the abdomen. The radiological impression was that the left kidney was normal and that the right kidney was nonfunctioning.

On Oct 1, 1951, 16 days after the baby's delivery, lumbar exploration of the right kidney was carried out. The preoperative diagnosis was probable Wilms' tumor. At operation, an infarcted kidney was found and a right nephrectomy carried out. The pathological report described a hemisected kidney measuring 2.5 by 3.5 by 1 cm. The pelvis was normal in appearance. The kidney tissue was soft, necrotic, and hemorrhagic. Microscopic examination showed extensive necrosis involving all areas. Some glomerular structures were preserved, as well as some tubular structures. The medium sized and small vessels showed necrosis, and there were many recent small thrombi. A diagnosis of extensive necrosis of kidney with many vessels thrombosed was made.

Postoperatively the urine was normal in appearance, and the baby gained weight steadily. Approximately eight months after the patient was discharged from the hospital, his local physician was contacted. The physician reported that the child was progressing normally. The only significant finding on repeated urine analysis was an occasional trace of albumin.

COMMENTS

In a consideration of the etiology of this condition, the high incidence of its occurrence in infants less than 2 months of age is striking. It usually occurs shortly after delivery, as exemplified by the two cases reported here.

It seems reasonable to assume that the thrombotic process is gradual rather than instantaneous. It is conceivable then that the occlusion of the renal vein manifested by signs and symptoms at the age of 2 months could have been initiated earlier. In case 2 there is strong evidence to indicate that it could have been initiated in utero, in support of this contention is the observation of gross hematuria within the first 24 hours of life and an abdominal mass palpable on the fourth day. Furthermore, study of the histological sections in both of these cases indicates that the degenerative changes in case 2 are of greater duration than those in case 1.

It is notable that none of the common causative factors described in the literature were present in these two cases. This would indicate to us that there are some causative factors as yet undescribed. The trauma of birth must be considered, but opposed to this possibility is the absence of thrombosis of the renal vein following deliberate, temporary occlusion during renal operations. This is much greater than any trauma that might conceivably occur during birth. In reviewing our cases, it is equally difficult to accept the role of hemoconcentration, associated with dehydration, as causing the selective thrombosis of a large and active renal vein. For the same reason, any systemic condition such as sepsis would seem to be equally unlikely. A more plausible explanation for this localized venous thrombosis is some local predisposing factor in the renal vein. Such a factor, aside from trauma, would seem to require some intrinsic congenital vascular anomaly, an obstructive lesion could account for a progressive thrombosis that becomes evident clinically only when the occlusion has become complete. Unfortunately, the search for such an anomaly is made doubly difficult by the thrombosis per se and the small segment of renal vein available for study after nephrectomy. In future cases devoid of trauma and constitutional disease, a thorough study of venous circulation of the kidney is indicated.

From our experience in these two cases, the choice of surgical approach should be emphasized. The lumbar or retroperitoneal approach precludes development of postoperative peritoneal adhesions and subsequent complications as demonstrated in case 1. Transperitoneal exposure of the kidney in the very young is unnecessary and unwise.

SUMMARY

Two cases of renal vein thrombosis in infants are reported. Full consideration of the signs and symptoms together with the urographic findings is of invaluable aid in ruling out renal tumors and recognizing this condition preoperatively. That renal vein thrombosis usually occurs in infants within the first two months of life is again emphasized. The possibility that thrombosis occurred in utero in case 2 is suggested. In these two patients, the absence of any of the accepted predisposing conditions gives rise to speculation about some additional causative factor. The possibility of a congenital vascular anomaly of the renal vein leading to occlusion is advanced. The lumbar surgical approach is advocated in preference to a transperitoneal approach.

STAPHYLOCOCCIC ENDOCARDITIS TREATED WITH NEOMYCIN

REPORT OF A CASE

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and

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The problem of staphylococcic endocarditis has recently been reviewed by Dowling and his associates¹, the reader is referred to his review for a complete bibliography. The following case illustrates the value of bacteriological control in therapy. To our knowledge this is the first report of successful use of neomycin in staphylococcic endocarditis, although Kenoyer² reported its use in endocarditis resulting from *Pseudomonas*.

REPORT OF A CASE

A 24-year-old white housewife was admitted to the Good Samaritan hospital in April, 1952, in a semicomatose state. She had been in good health during an uneventful pregnancy until two weeks prior to admission, when cough and fever developed. She was hospitalized elsewhere and was given penicillin and streptomycin. Because the cough, fever, and dyspnea rapidly became worse, she was given successively aureomycin, chloramphenicol (Chloromycetin), oxytetracycline (Terramycin), and *p*-aminosalicylic acid without improvement. One week after the onset of her illness, she delivered a stillborn infant of eight months gestation. Her course continued downhill and, three days before admission to Good Samaritan Hospital, she was given digitoxin and cortisone. The day before admission she had pleuritic chest pain and hemoptysis for the first time. Her history was unremarkable except for a spontaneous abortion one year before the present illness. There was no known heart disease or rheumatic fever, and there was no history of rheumatic fever in the family.

Physical examination showed an acutely and critically ill young woman who was semicomatose. Her temperature was 101.2 F rectally. There was no cyanosis, but the skin was *cafe-au-lait* colored. The respirations were grunting, and the rate was 32 per minute. Coarse and crepitant rales were present throughout both lungs. The heart was enlarged to the left to the anterior axillary line in the fifth interspace. There was a forceful thrust over the right ventricle. P-2 was accentuated and M-1 was muffled. Loud systolic and diastolic murmurs were heard at both apex and base. There was a sinus tachycardia of 120, blood pressure was 100/60 mm Hg. The remainder of the examination was normal except that the Babinski sign could be elicited on the right. No petechiae were seen, the liver and spleen were not felt, and the fingers were not clubbed.

The hemoglobin level was 10.1 gm per 100 cc, red blood cell count per cubic millimeter was 3,150,000, and white blood cell count 14,200, with 85% polymorphonuclear leukocytes, 1% eosinophils, 13% lymphocytes, and 1% monocytes. The

sedimentation rate was 45 mm in one hour (Westergren). Urinalysis was normal, and the initial blood culture was sterile. A roentgenogram of the chest confirmed the presence of cardiac enlargement and showed a bizarre pulmonary infiltration with mottled density throughout the left lung field and the lower half of the right lung field. An electrocardiogram showed digitalis effect and inverted T waves in V-1, V-2, and V-3 suggesting acute right ventricular strain.

The patient was given oxygen, maintained on digitalis and given anticoagulants, but the dyspnea and rales became worse, and the anemia increased. Rectal temperatures ranged from 98 to 101 F. On the fourth hospital day, administration of cortisone was resumed, and transfusions were given, she then improved slowly. The patient's chest cleared both to physical and roentgenographic examination, and the sedimentation rate returned to normal, but the low grade fever and leukocytosis continued.

On the presumptive diagnosis of bacterial endocarditis, the patient was given 2 million units of penicillin and 1.5 gm of streptomycin daily without any change in her course. Meanwhile, three successive blood cultures and a bone marrow culture had been taken, and three more blood cultures were taken during the penicillin and streptomycin therapy. All of these cultures were positive, yielding a nonpigmented *Micrococcus*. The organism produced acid from glucose, maltose, sucrose, and lactose but not from mannitol. Hydrogen sulfide was not formed, gelatin was liquefied slowly, and ammonia was produced from peptone. There was no hemolysis on blood agar and no coagulase production. From these and other characters, a tentative identification of *Micrococcus epidermis*³ (*Staphylococcus epidermis*) was made.

Sensitivity tests by means of disk technique (Difco Discs) demonstrated that the organism was resistant to the following antibiotics: penicillin, streptomycin, aureomycin, chloramphenicol, bacitracin, and oxytetracycline and, also, that its growth was simulated by these antibiotics. The sulfonamides were likewise incapable of inhibiting growth. Tests by means of the tube dilution technique,⁴ with penicillin, disclosed maximum growth at a concentration of 50 units of penicillin per milliliter of solution. It was also found that no synergism existed between penicillin and streptomycin. Polymyxin was ineffective. Neomycin sulfate assayed by this method demonstrated an inhibitory effect at a concentration of 0.1 to 0.2 µg per milliliter.

On the 26th hospital day, therapy with 0.25 gm of neomycin sulfate administered intramuscularly every six hours was started. One week later, the amount of neomycin sulfate was reduced to 125 mg every four hours. Blood levels were 0.8 to 1.2 µg per milliliter, well above the bacteriostatic level. There was prompt clinical response. The patient's temperature returned to normal in 24 hours, and she was subsequently afebrile. Therapy with cortisone was discontinued before the administration of neomycin was started, and her sedimentation rate remained normal. There was no flare up of the pneumonia. Urinalyses performed each day during therapy with neomycin consistently showed a trace of albumin and a few hyaline casts after the first week, but there was no evidence of progressive kidney impairment. The blood urea nitrogen was never elevated. Administration of the neomycin was continued for five weeks, until the patient complained about buzzing in the ears and slight decrease of auditory acuity. Her auditory acuity has remained impaired, but vestibular signs have not developed. She has remained well for one year and has resumed her former activity. There is no cardiac failure, but the left ventricle is enlarged laterally and posteriorly. Auscultation of the heart reveals a harsh systolic and a soft blowing diastolic murmur at the base. No murmurs are heard at the apex. Many blood cultures taken over the four months following hospitalization were sterile. The patient is no longer anemic and her urine is normal except for a trace of albumin. The electrocardiogram indicates that the heart is in a vertical position and that there is left ventricular hypertrophy.

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¹ Dowling H F, Lepper M H, Caldwell E R, and Spies H W. Staphylococcic Endocarditis: Analysis of 25 Cases Treated with Antibiotics, Together with a Review of Recent Literature. *Medicine* 31: 155 (May) 1952.

² Kenoyer W L, Stone C T, and Levin W C. Bacterial Endocarditis Due to *Pseudomonas aeruginosa*—Treated with Neomycin presented at the Southern Sectional Meeting of the American Federation for Clinical Research, Jan 18 1952, Atlanta, Ga. abstracted in *Am J Med* 13: 108 (July) 1952.

³ Breed R S, Hitchens E G D, and Hitchens A P. *Bergey's Manual of Determinative Bacteriology*, ed 6. Baltimore: Williams & Wilkins Company, 1948, p 242.

⁴ Osgood E E, and Graham S M. A Simple and Rapid Method for Assay of Bactericidal and Bacteriostatic Agents with Techniques for Assay of Penicillin, Streptomycin, Neomycin, Neopharsen, and Other Trivalent Organic Arsenicals. *Am J Clin Path* 17: 93 (Feb) 1947.

COMMENT

Although renal and eighth nerve damage are known to occur after parenteral administration of neomycin, there have been no reports of toxicity in cases in which the dose was limited to 1 gm a day for a period of 7 to 10 days.⁵ We elected to continue use of the antibiotic as long as possible because of the possibility of a bacteriological relapse on premature discontinuance of therapy and the possibility that the organism might then be resistant to neomycin as well as the other antibiotics. The occurrence of buzzing in the ears and slight decrease in hearing after five weeks of therapy was considered the indication to discontinue therapy with the drug.

SUMMARY

The case of a 24-year-old pregnant woman with endocarditis complicating active rheumatic carditis and rheumatic pneumonia is reported. The causative organism was resistant *in vitro* to all available antibiotics except neomycin. The patient recovered after prolonged administration of neomycin.

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5 Reames H R. Personal communication to the authors.

GLOSSOPHARYNGEAL NEURALGIA WITH SYNCOPE AND CONVULSIONS

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It is our deep conviction that a report of one case, no matter how interesting to an isolated group, should not be undertaken lightly. It is our opinion, however, that a rare syndrome that combines complete disability, unbearable pain, and convulsions, and that is cured by a simple neurosurgical procedure constitutes a situation in which the report of an isolated case is justifiable. The syndrome we would present is readily diagnosed by the symptoms and is completely cured by the intracranial section of the glossopharyngeal nerve. The symptoms are pain in the region of one ear and one side of the throat, occurring at brief intervals, of short duration, and accompanied by bradycardia, at times resulting in attacks of syncope and convulsions.

Glossopharyngeal neuralgia has been a recognized entity for 30 years, and it is similar to tic douloureux except for the location of the pain and the trigger zone. It occurs about 1/40th as often as trigeminal neuralgia and is sufficiently rare that many experienced neurosurgeons have never seen a case. As pointed out by Pastore and Meredith in 1949¹ when they reported eight cases, this neuralgia is completely cured by intracranial section of the ninth nerve. The association of the neuralgia with the carotid sinus syndrome or cardiac arrest and convulsions is apparently a very rare condition but has been recognized for the last 10 years. Riley and associates² in 1942 reported such a case and suggested that during these attacks of pain excessive stimuli to the carotid sinus reflex pathway was the cause of the syncope and cardiac arrest. In 1948 Ray and Stewart³ reported

a similar case, which was cured by ninth nerve section. They suggested that atropine might have abolished the cardiac response and therefore the syncope, however, they did not test this presumption because the patient was in intense pain and demanded immediate relief.

We wish to present in some detail another example of this syndrome, in which we were able to dissociate the cardiac response from the pain by the use of atropine, suggesting that temporary control of convulsions and cerebral manifestations may be achieved until complete cure by surgery can be effected.

REPORT OF A CASE

A 36-year old north Texas farmer first came to the hospital July 2, 1950. He was in a deplorable condition, and the principal complaint was pain. The pain was an intense, lancinating, burning, shock-like sensation occurring at brief intervals and lasting only a short while, starting deep within the left ear, and spreading to the deep structures of the upper portion of the throat on the left side. The attacks of pain were almost always brought on when the patient swallowed, particularly if he swallowed cold liquids, and they were frequently induced by simply clearing the throat or by talking. On at least 12 occasions the pain had been accompanied by sudden loss of consciousness, so sudden that he would fall. He had been told that during these short periods of unconsciousness that there were jerking movements of the extremities, the eyes would roll, and he apparently had great difficulty with breathing. Although he had fallen during attacks, he had never been incontinent nor had he ever bitten the tongue. After regaining consciousness he would be perfectly normal except that there would be severe sweating and weakness for a short period of time. The patient was so certain that swallowing caused the pain that for days at a time he would forego eating, to the point where he had lost 25 lb (11.3 kg) in the six weeks before coming to the hospital. He frequently refused to talk and would communicate only by writing. He even refused to swallow saliva and would permit it to drool from the side of the mouth into a cup. The history indicated that in March, 1949, what was considered to be a cold in the left ear developed prior to which he had always considered himself to be in good health. After this rather obscure cold in the left ear, he had the first attack of pain and unconsciousness, during which he fell and sustained abrasions to the face and nose. There had been recurrence of mild episodes in December, 1949, and in February, 1950, but the pain was not accompanied by syncope. The attacks, which began about six weeks prior to entering the hospital, had steadily increased in severity and frequency to the point where at times he might have 20 or 30 attacks during a 24 hour period. He consulted several physicians, including an otolaryngologist, but without diagnosis or any relief of his symptoms. In an effort to obtain relief he had the upper and lower molars on the left side extracted without the slightest benefit.

Physical examination on admission showed a haggard, unshaven, chronically ill, white man in his middle 30s. He carried a tin cup for the purpose of permitting saliva to drool from the right side of the mouth. The man talked, on those rare occasions when he would talk, in a coarse weak whisper. There was slight weakness of the right internal rectus muscle, known to have been present since at least the age of 13, with a slow minor nystagmus present on directing the eyes to the right. Complete neurological examination was otherwise entirely normal. Except for some degree of pyorrhea and evidence of recent extraction of the upper and lower molars on the left, the oral cavity and pharynx appeared normal. Gag reflex was hyperactive. There

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1 Pastore P N and Meredith J M. Glossopharyngeal Neuralgia. Tic Douloureux of Ninth Cranial Nerve. *Arch Otolaryng* 50: 789 (Dec) 1949.

2 Riley H A and others. Glossopharyngeal Neuralgia Initiating or Associated with Cardiac Arrest. *Tr Am Neurol A* 68: 28 (1942).

3 Ray B S and Stewart H J. Glossopharyngeal Neuralgia. Cause of Cardiac Arrest. *Am Heart J* 35: 458 (March) 1948.

were no cardiac abnormalities, and rate and rhythm were normal. Repeated tests for carotid sinus hyperactivity were negative, and there was no evidence of postural hypotension. Blood pressure was 110/70 mm Hg. The remainder of the physical examination was within normal limits. Laboratory studies, including spinal fluid examination, were normal. Roentgenograms of the skull, sinuses, mastoid, chest, and esophagus demonstrated no abnormality. Minimal osteoarthritic changes were noted in the cervical spine films. Electroencephalograms and electrocardiograms were within normal limits.

During the first few days of hospitalization several attacks of pain and syncope were observed. On examination of the throat in the ear, nose, and throat department it was found that mechanical stimulation in the left tonsillar fossa would produce a typical attack of pain, and on the first occasion a brief clonic convulsion occurred that lasted about 20 seconds. Several attacks were induced before and subsequent to the administration of atropine. During the procedure the auscultatory blood pressure readings and electrocardiogram were recorded. After mechanical stimulation of the trigger zone in the left tonsillar fossa there was marked sinus bradycardia to about 15 per minute with transient drop in blood pressure from about 120/70 to 40/0 mm Hg and even occasionally to unobtainable levels, at which time marked facial pallor, brief unconsciousness, and convulsive movements of the extremities would appear. After each attack in which consciousness was lost there was prompt recovery, but weakness, sweating and headache were noted. On one occasion nodal rhythm was recorded, with a completely blocked ventricular response. The blood pressure dropped to 80 systolic with some pallor but no unconsciousness on this occasion. After intravenous administration of 1.2 mg ($\frac{1}{50}$ grain) of atropine another attack of severe pain was unaccompanied by cardiac slowing and the blood pressure remained unchanged at 130/80 mm Hg. After a number of induced attacks the trigger zone in the left tonsillar fossa became refractory to mechanical stimulation, and he experienced only mild twinges of pain thereafter during the hospital course. He was given belladonna tincture, 20 drops three times a day, and had no recurrence of syncopal episodes. He was discharged Aug 11, 1950, having gained 20 lb (9.1 kg) during his hospital stay.

He was readmitted to the hospital Nov 28, 1950, because of severe recurrence of pain, suffering 20 to 30 attacks daily. He had not, however, had a syncopal or convulsive episode while continuing to take belladonna. He presented the same appearance as on the first admission, except that he refused to utter a sound. He had lost weight and would not eat. He remained in bed, had repeated attacks of pain, and drooled constantly into tissue papers, which he deposited in wastebaskets at the bedside. Physical examination gave the same results as on the previous hospital admission. Prior to the administration of atropine, convulsive seizures appeared with the attacks of pain. Again the effect of atropine in blocking the cardiac slowing was demonstrated although the typical neuralgic pain was unaffected. On one occasion an attempt was made to block the glossopharyngeal and vagus nerve with local injection of procaine, following which stimulation of the tonsillar fossa had no effect. Shortly after the procedure he had a typical spontaneous attack, this occurring before an adequate block should have completely lost its effect. An electroencephalogram was again obtained, and after hyperventilation a typical seizure occurred, associated with moderate frontal slowing (frequency 6 cycles per second).

The patient was transferred to the neurological service. On Dec 7, 1950, with the patient in the upright cerebellar position, the left glossopharyngeal nerve and the upper two filaments of the vagus nerve were sectioned through the usual left suboccipital craniotomy. Atropine was administered before the nerves were approached. No lesion was observed in the area exposed by the operating surgeon, which included for the most part the cerebellopontine angle area. Except for some nausea and vomiting for four days, the postoperative course was uneventful. He remained free of his presenting symptoms and was discharged without medicaments of any type on Dec 22, 1950.

He returned for a follow up examination Jan 15, 1952 and considered himself to be well. There had been no recurrence of his previous symptoms. He was employed eight hours a day in an aircraft factory and worked an additional eight hours a day on his farm. He had noted occasionally that water came out of his nose if he drank rapidly and that he gagged fairly easily.

Physical examination was within normal limits. Neurological examination revealed a mild degree of loss of pain sensation over the second and third divisions of the left trigeminal nerve. It was thought this might be related to the fact that the trigeminal nerve had been deliberately exposed and examined during the surgery. Sensations of taste and smell were normal. The gag reflex appeared hyperactive. Stimulation in the area of the left tonsillar fossa produced no pain, and no vagal effect on the heart rate could be demonstrated by electrocardiography during such stimulation. Massage of each carotid sinus, separately and together, produced no evidence of increased sensitivity. An electroencephalogram was normal, as were skull and chest films.

COMMENT

We have presented a case characterized by pain typical of glossopharyngeal neuralgia and accompanied by cardiac slowing and periods of unconsciousness frequently with convulsions. No demonstrable lesion existed to explain this syndrome. The cause of glossopharyngeal neuralgia, as well as the cause of the other major neuralgias, is unknown.

The autonomic centers in the brain that regulate the cardiovascular and respiratory systems receive afferent impulses from many points throughout the body, however, stimuli arising in the carotid sinuses and aortic arch are known to be especially important in regulating blood pressure and cardiac rate. It is known that the glossopharyngeal nerve is an important contributor, together with perhaps the vagus, hypoglossal, and cervical sympathetics, to the carotid sinus. Intracranial section of the glossopharyngeal nerve and part of the vagus has been recommended for cure of syncope caused by hypersensitive carotid sinus.⁴ It is our assumption that, during the attacks of neuralgic pain, the glossopharyngeal nerve and its central pathways, which are presumably the principal pathways over which carotid sinus impulses are carried, are bombarded with an intense overload of afferent impulses. These travel to the autonomic centers of the brain and find their way to the vagus, which mediates the increased "vagal effect" with cardiac slowing and blood pressure fall, to the point where cerebral ischemia occurs. This results in syncope and convulsions exactly like that seen in the carotid sinus syndrome. We have demonstrated that atropine will abolish the vagal response even though the neuralgic pain is unaffected. Atropine or its derivatives can be used, at least temporarily, to prevent the syncope and convulsions until complete cure can be effected surgically. Topical anesthesia to the trigger zone should be effective for brief periods of time in abolishing the attacks so that the patient can take nourishment and thus avoid severe dehydration and weight loss. It should also be possible to control this syndrome for short intervals by the use of the procaine block of the glossopharyngeal and vagus nerves on the side involved.

The permanent cure is easily effected, as demonstrated in this case, by intracranial section of the glossopharyngeal nerve and the upper two filaments of the vagus nerve. The operation is so simple and safe that we believe it should not be withheld from such a suffering patient for any undue length of time.

4 Ray B S and Stewart, H J. Role of Glossopharyngeal Nerve in the Carotid Sinus Reflex in Man. Relief of Carotid Sinus Syndrome by Intracranial Section of the Glossopharyngeal Nerve. Surgery 23: 411 (March) 1948.

TABETIC CRISES TREATED WITH CORTICOTROPIN

REPORT OF A CASE

Alfred L. Weiner, M.D.

and

Harry R. Mendelsohn, M.D., Cincinnati

The lack of definitive treatment and the consequent difficulties that arise in the management of the patient with severe crises of tabes dorsalis are well known. At the same time, the capricious nature of this syndrome makes the evaluation of any therapeutic measure difficult and generally unsatisfactory. Because the patient in the case report that follows failed to respond to some of the more usual therapies for gastric crises, corticotropin was administered intravenously. The apparent favorable response together with our failure to find any recorded reference to such treatment of tabetic crises prompted us to report this experience.¹

REPORT OF CASE

The patient, a white woman, aged 40, first came under observation of one of us (H. M.) on Dec. 24, 1947, when she was complaining of cramping pain in the upper abdomen and persistent vomiting and nausea of four days' duration. This illness did not respond to symptomatic medication, and the patient was admitted to the Mercy Hospital on Dec. 27. At this time the positive physical findings consisted of moderate dehydration, atonic bladder, fixed unequal pupils, hyperactive tendon reflexes, and positive Romberg sign. The abdomen was soft and no masses or organs were palpable. The gastrointestinal series and flat plate x-ray examinations of the abdomen revealed no abnormalities. The diagnosis of tabes dorsalis with gastric crises was made on the basis of the history of the present illness and findings, the history of previous antisyphilitic treatment, persistently strongly positive serologic tests for syphilis (blood), and spinal fluid studies that showed positive Wassermann, Kolmer and Eagle reactions, 4 white blood cells per cubic centimeter, and a first zone gold curve reaction. The protein content was not determined.

The patient was treated with Wangensteen irrigation, repeated catheterizations, various sedative, antispasmodic and anodyne medicaments, and injections of aqueous penicillin in divided doses of 30,000 units every four hours (a total of 9 million units was administered during this hospitalization). The nausea and vomiting persisted unabated until Jan. 2, 1948, however. The patient also began voiding voluntarily on this date and had made a complete recovery by Jan. 13 when she was discharged from the hospital. After this she was given daily injections of penicillin in oil and beeswax (300,000 units each) to a total of 10 million units and then weekly or semiweekly phenarsone (Aldarson), oxophenarsine (Mapharsen), or bismuth subsalicylate injections (30 each) were administered. There were no further disturbances, and reexamination in October, 1948, showed no additional neurological findings except that the bladder was functioning normally. The Kahn, Kline, and Pangborn reactions were strongly positive in a dilution of 1:8 and the spinal fluid showed a strongly positive Wassermann reaction, third zone gold curve, 20 mg per 100 cc of protein and 2 lymphocytes.

The patient had no further difficulty until Dec. 10, 1952, when she again began to have persistent and severe nausea and vomiting together with epigastric pain radiating to the anterior part of the chest. These vomiting attacks continued despite symptomatic ambulatory treatment. The patient became exhausted and dehydrated and was readmitted to the Mercy Hospital on Dec. 16, 1952. At this time the abdomen was again

soft, and no masses or organs could be felt. The significant physical signs consisted of severe dehydration, distention of the bladder, fixed unequal pupils, and hyperactive tendon reflexes. In view of the previous episode and the absence of other apparent causes in explanation of the patient's symptoms, the diagnosis of tabetic crises was again made. She was treated by means of sodium chloride and glucose intravenously, with and without the addition of vitamin B complex mixtures, and received meperidine (Demerol) and sodium phenobarbital (Luminal) injections at frequent intervals. The nausea and vomiting persisted during the next two days. On Dec. 18, at which time the nausea and vomiting had been persistently present for eight consecutive days, 10 mg of corticotropin in 500 cc of 5% glucose in normal sodium chloride solution were administered. Within four hours the patient was more comfortable and, although there was some nausea, the vomiting had ceased. Ten milligrams of corticotropin in sodium chloride and glucose solution were given intravenously on Dec. 19 and the dosage was increased to 15 mg on Dec. 20 and Dec. 21. There was no vomiting and very little nausea on Dec. 19, 20, and 21, and the patient voided a small amount of urine for the first time on Dec. 22. Corticotropin therapy was discontinued on Dec. 22 and cortisone in a dosage of 100 mg daily was given. By Dec. 23 the patient was completely comfortable and was voiding normally. There was no pain, nausea, or vomiting. The improvement continued, and there were no further symptoms. The patient was not discharged from the hospital until Dec. 28, although she had for all practical purposes fully recovered by Dec. 24. The serologic tests of the blood showed a positive reaction with the Venereal Disease Research Laboratory test and the spinal fluid Wassermann reaction was negative, as was the gold curve reaction. The spinal fluid contained 10 mg. per 100 cc of protein and three lymphocytes.

SUMMARY AND CONCLUSIONS

While one cannot exclude the possibility of spontaneous arrest of the symptoms in patients with tabetic crises, it appears most probable that intravenous administration of corticotropin was responsible for the rather dramatic response in this patient. In the 1947-1948 episode the total duration of the attack was some 13 days and seemed entirely unaffected by the various treatment measures. In the 1952 attack relief was observed on the eighth day in a matter of hours after the initial dose of corticotropin. Since intravenous administration of glucose alone has been known to be followed by relief of crises, it is noteworthy that this did not occur until the corticotropin was added in this instance. One can only speculate as to the mechanism of the apparent beneficial effect of corticotropin in this patient. On the basis of this limited experience, however, we believe that this method of therapy should be tried in additional patients with crises and perhaps even in other acute manifestations of tabes dorsalis.

615 Union Central Bldg (Dr. Weiner)

From the Department of Dermatology and Syphilology of the University of Cincinnati (Dr. Leon Goldman, Director) and the Department of Medicine, Mercy Hospital.

¹ Brown, R. L. Personal communication to the authors.

Artificial Pneumothorax.—As a major weapon in the treatment of tuberculosis, pneumothorax has been defeated by the deceptive simplicity of its technique, which encouraged its employment in unsuitable cases and in unsatisfactory conditions.

Its limitations are clearly understood now, it is being practiced with greater care and discrimination than ever before, but developments in other fields have provided alternatives, and it is doubtful if in the future pneumothorax will occupy more than a minor place in treatment. It is rapidly becoming extinct in areas where surgical facilities are readily available.

Lack of surgical facilities in certain regions will ensure its survival for some time yet, but on a gradually diminishing scale.—R. Y. Keers, M.D., Complacency or Conquest?, *Edinburgh Medical Journal* March, 1953.

METHEMOGLOBINEMIA RESULTING FROM THE ABSORPTION OF SODIUM NITRITE

REPORT OF A CASE

*Capt Irving H Rozenfeld (MC), U S A F
Oklahoma City*

The occurrence of methemoglobinemia in children as a result of the ingestion, absorption, and inhalation of a great variety of chemical compounds is well recognized. The chemicals most commonly reported to be ingested are nitrates and nitrites, although such compounds as aniline dyes, acetophenetidin, sulfonamides, toluene, and others¹ have also been implicated. Stevens² has reported a case of methemoglobinemia in infancy resulting from the inhalation of nitrobenzene. Methemoglobinemia resulting from absorption of aniline compounds through the skin has frequently been reported since Rayner's³ case in 1886. In most of these cases, aniline dye used as laundry identification marks in diapers was the causative agent, but industrial compounds such as 2-anilinoethanol can also cause methemoglobinemia.⁴ Following is the report of a case of acute methemoglobinemia resulting from the absorption of sodium nitrite through a burned area.

REPORT OF A CASE

A 3½-year-old white boy was admitted to the hospital on March 27, 1952, with first, second, and third degree burns involving an estimated 45% to 55% of the body area. On initial examination he appeared to be in a semishock state with first, second, and third degree burns noted about the chest, neck, back, right arm, right thigh, and right leg, and second degree burns about the face. The initial blood studies revealed a white blood cell count of 18,200 per cubic millimeter, 13.8 gm of hemoglobin per 100 cc, and a hematocrit reading of 40 cc. The burns were covered initially with pressure petrolatum (Vaseline) dressings. At that time the administration of plasma, blood, and fluids intravenously was started through a cut-down in a superficial vein of the leg. The patient's fluid and electrolyte balance was followed closely for three days, after which he took adequate fluids and food by mouth although he still required transfusions from time to time.

The dressings were first changed on April 4, 1952, with the patient under general anesthesia. Dressings were removed, the burns were débrided carefully and cleansed thoroughly with benzalkonium (Zephiran) chloride solution (1:1,000), and the patient was returned to the ward in good condition. The next change of dressing was accomplished on April 11, 1952, again with the patient under general anesthesia. The patient's condition on entering surgery was good. The burned areas were again débrided and irrigated thoroughly with the benzalkonium chloride solution. While the petrolatum pressure dressings were being applied the patient was noted to be cyanotic, but his pulse was only moderately elevated from the rate observed at the beginning of the procedure. His airway and oxygen supply appeared adequate, and respirations were normal. He was receiving a blood transfusion at the time the cyanosis occurred. Approximately 100 cc of blood was forced into the vein under pressure and 100% oxygen was given through an endotracheal tube but the patient's bluish gray discoloration did not improve. The cyanosis actually appeared to be somewhat worse after the transfusion.

The patient was returned to the ward and placed in an oxygen tent, however, his color continued to be grayish blue. No other abnormal physical findings were noted. A complete blood cell count performed at this time revealed 31,000 white cells with 69% neutrophils, 28% lymphocytes, and 3% monocytes. The red blood count was 4,300,000, with 13.1 gm of hemoglobin. A roentgenogram of the chest showed no abnormality. Inquiries in both surgery and pharmacy departments about one and one half hours after the patient had returned from surgery revealed that the benzalkonium chloride (1:1,000) solution used to irrigate the burns also contained sodium nitrite. Approximately 7 grains (0.5 gm) of sodium nitrite, ordinarily used to prevent oxidation of surgical instruments had been added inadvertently to 4,000 cc of the benzalkonium chloride solution. A tentative diagnosis of methemoglobinemia as a result of the absorption of sodium nitrite through the burned area was made. A sample of blood was collected under oil and the patient was then given 2 cc of 1% methylene blue intravenously over a three minute interval. Within 20 minutes the patient's color was normal, and all evidence of cyanosis was gone. The blood specimen collected under oil was examined spectrophotometrically, and the analysis confirmed the diagnosis of methemoglobinemia.

COMMENT

This case demonstrated the fact that methemoglobinemia can result from the absorption as well as the ingestion of nitrites. It reemphasizes the fact that absorption through a burned area is increased and that the composition and identity of all medicaments must be repeatedly checked.

From the U S Air Force Hospital Tinker Air Force Base.

1 MacDonald W B. Methaemoglobinemia Resulting from Poisoning in Children. *M J Australia* 1: 145 1951.

2 Stevens A N. Cyanosis in Infants from Nitrobenzene. *J A M A* 90: 116 (Jan 14) 1928.

3 Rayner W. Cyanosis in Newly Born Children Caused by Aniline Marking Ink. *Brit. M J* 1: 294 1886.

4 Bass A D, Frost L H, and Salter W T. 2 Anilinoethanol—Industrial Hazard. Production of Methemoglobinemia. *J A M A* 123: 761 (Nov 20) 1943.

Cancer in Children—Contrary to popular belief, cancer in children is primarily a problem for general practitioners and pediatricians and only secondarily for surgeons and radiologists. After all, the success or failure of the latter's technical therapy depends on an early diagnosis by the family physician.

The most important single factor in the early diagnosis of cancer is that the physician should be constantly on the alert for its occurrence, and that his mind should be so conditioned to suspecting its presence that he includes it in virtually every differential diagnosis. The early symptoms of childhood cancer are often vague and obscure, and frequently are similar to those seen in the usual childhood diseases. It is only in the late phases that the commonly described signs of anorexia, weight loss, anemia, large palpable masses, etc., are seen. To diagnose it early, one must suspect its possibility in any child with enlarged lymph nodes which have persisted beyond the usual few days when they are due to infection, intermittent fever, anorexia, weight loss, vague, persistent slowly increasing bone pain in one extremity, even though no tumor is palpable, dilatation of one pupil, especially if a white or grayish reflex is present, recurrent dizziness, headache, vomiting without nausea, unsteadiness of limbs, partial loss of vision, sensory changes, lack of sphincter control, bleeding from any body orifice, painless masses of any kind in any location. In other words, cancers of all types occur in children and no organ can be considered immune. —J H Bufkin, R.N., R.R.L., and W C Davison, M.D., *Childhood Cancer (Tumors, Leukemia, and Hodgkin's Disease), The Journal of Pediatrics*, May, 1953.

SPECIAL ARTICLE

MR R F SHROPSHIRE'S NONSURGICAL TREATMENT OF CATARACT

The following report was prepared by the Committee on Ophthalmology of the Division of Medical Sciences of the National Research Council—Ed

On Sept 12, 1952, there appeared in *Science* an article by R F Shropshire, Jacob R Ginsberg, and Mendel Jacobi¹ reporting beneficial effects from the nonsurgical treatment of cataract with injections of fish lens protein. Because of the widespread public interest that it aroused and because of the inadequacy of the evidence presented, the Council of the American Academy of Ophthalmology and Otolaryngology petitioned the National Research Council to investigate the authors' claims. An investigation was made by the National Research Council Committee on Ophthalmology, whose findings and recommendations form the basis for this report.

The hypothesis that lens antigens might be useful in the treatment of cataract is not new. In 1908 Romer² reported success in treating cortical cataract with tablets of mammalian lens protein. In 1923 Davis,³ in this country, attempted active immunization with bovine lens material. The latter's favorable reports led to a number of other investigations.⁴ These, however, failed to confirm Davis' findings, and the proposed therapy lapsed into obscurity.

The use of fish lens protein was attempted in 1933 by Lewis,⁵ with whom its present proponent, Mr R F Shropshire, was then associated. Again favorable results were claimed but the ophthalmologic details presented were unconvincing, and the report aroused little interest on the part of the profession.

Mr Shropshire's interest, however, continued, and in 1937 he published two papers⁶ on the subject. In addition to reviewing Lewis' work, he cited a paper by

Hektoen and Schulhof⁷ as evidence that the lens proteins of fish are immunologically different from those of mammals. In fact, these authors had specifically stated that fish lens contains antigens that interact with mammalian lens, in addition to others that are species specific. Shropshire also reported chemical differences between piscine and mammalian lenses, being able to account for only a part of the sulfur content of fish lenses, he postulated the existence of a previously undescribed sulfur-bearing amino acid of therapeutic value. Unfortunately his analytical methods were not suitable for the detection of either cystine or methionine, the latter alone accounts for about half of the sulfur present, and cystine and cysteine almost completely account for the rest.⁸

The chemical argument is extended in the recent paper of Shropshire, which reports that differences were found between the electrophoretic and ultracentrifugal patterns of mammalian and piscine lens proteins. According to the detailed report furnished the committee, these studies were performed by Dr Kurt G Stern with human and piscine lenses. Since the patterns of bovine and human lens proteins are also very different from one another, the observations of Stern do not support Shropshire's claim that fish lens has distinctive qualities of possible therapeutic value. In any case no deductions as to antigenic behavior can be made legitimately from physicochemical measurements of the type described.

The article in *Science* is chiefly notable for its reports of the successful treatment of cataract in rats and humans with injections of fish lens protein. On investigation, it developed that cataracts had been induced in the rats by feeding them galactose. Since such cataracts appear superficially to clear when the administration of galactose is stopped regardless of treatment, these observations do not provide convincing evidence in favor of the fish lens therapy.

The most impressive claim was that of improved visual acuity in the patients treated by Shropshire's co-authors, Drs Ginsberg and Jacobi. The article referred to an initial group of 14 patients, described in general terms, and an additional 12 whose acuities before and after treatment were given in a table. In order to provide an independent evaluation of these claims, arrangements were made to have a subcommittee of the Committee on Ophthalmology examine a group of patients selected by the proponents of the therapy. Eleven patients were examined, all of whom were enthusiastic about the benefits that they had obtained. The findings were compared with those recorded when the treatment was begun. In six patients the visual acuity was less than before treatment, and the cataracts appeared to have progressed steadily in the usual fashion. Two others showed little or no change. Three showed slight or questionable improvement, two of these had vitreous opacities, and their subjective reports clearly supported the conclusion that the improvement had been due to shifting of these opacities out of the line of vision. In only one patient did the data appear to suggest an actual improvement, since, however, neither Shropshire nor his collaborators were ophthalmologists, their original estimate in this case may have been in error.

1 Shropshire R F, Ginsberg J R and Jacobi M. Nonsurgical Treatment of Cataract. *Science* 116: 276, 1952.

2 Römer P. Spezifische Therapie des beginnenden Altersstars. *Ber u d Versamml d ophth Gesellsch* 35: 195, 1908.

3 Davis A E. Lens Antigen (Vaccines) Used to Absorb Cortical Matter After Extraction of Cataract. *Am J Ophth* 6: 295, 1923. Serum and Lens-Antigen Extract Treatment for Prevention and Cure of Cataract. *Arch Ophth* 64: 172 (March) 1925.

4 Berens C and others. Studies in Immunology in Relation to Ophthalmology. Outline of Diagnosis and Biologic Therapy with Special Reference to Lens Antigen in Diagnosis and Treatment and Serum Therapy. *Atlantic M J* 30: 547, 1927. Ellis Z H. Non-Operative Treatment of Cataract with Report on Lens Antigen Treatment. *Arch Ophth* 57: 46 (Jan) 1928. Kirby D B and Giles N W. Report on Investigation of Lens Protein Therapy in Cases of Cataract. *Tr Am Acad Ophth* 35: 309, 1930. Biffis A and Quaglio C. Recherche Sperimentale di Antigenoterapia Cristallinica. *Ann. di otol e Clin Occul* 61: 641, 1933. Selinger E. Local Quinine Therapy in Trachoma. *Arch Ophth* 14: 244 (Aug) 1935.

5 Lewis P. In: Fourteenth International Congress of Ophthalmology. Madrid 1933, vol 1, p 209.

6 Shropshire R F. Fish Lens Protein and Cataract. I. Therapeutic Value. *Arch Ophth* 17: 505 (March) 1937. Fish Lens Protein and Cataract. II. Chemical Studies. *Ibid* 17: 508 (March) 1937.

7 Hektoen L and Schulhof K. J. Lens Precipitins. Antigenic Properties of Alpha and Beta Crystallins. *J Infect Dis* 34: 433, 1924.

8 Dische Z and Zil H. Studies on Oxidation of Cysteine to Cystine in Lens Proteins During Cataract Formation. *Am J Ophth* 34: 104 (pt 2) 1951.

The subjective improvement, in most cases, was in near vision, the obvious explanation of this is the development of functional myopia in a progressing cataract. Two patients, as mentioned, were pleased because their vitreous opacities seldom bothered them, and another because his sensitivity to light and multiple vision when looking at lights had disappeared. With the possible exception of one patient, therefore, there was no evidence that the normal course of the cataracts had been affected by the treatment.

A later report received by the committee described the results of treatment administered independently by an ophthalmologist on the staff of a recognized medical school, using fish lens protein supplied by Mr. Shropshire. The cases were unselected, and included 14 eyes with cataracts in 9 patients. No objective change in the cataracts could be discovered, in four cases vision as measured by the test chart was slightly improved, while in two it was worse. Seven patients reported subjective improvement, which the physician considered to be psychological, one felt that she was worse.

Further evidence indicates that treatment with foreign lens proteins is not merely ineffective but also hazardous to the patient. Posner⁹ has recently called attention to serious reactions, leading in one case to total blindness, in patients sensitized to their own lens protein by injections of both beef and fish lens extracts, he warned ophthalmologists of the dangers that may arise when such patients come to operation. This was corroborated by a member of the committee, who referred to the unfortunate postoperative histories of patients treated unsuccessfully with beef lens protein. It should further be noted that of 12 sample bottles of the fish lens preparation furnished to the Ocular Research Unit of the Walter Reed Army Hospital by the Cataract Institute, 10 were contaminated with pathogenic organisms.

The committee also inquired into the backgrounds and qualifications of the proponents, to determine how much credence might be given to their reports. No evidence was found that Mr. Shropshire had any formal scientific training, claims that he was a graduate physician and had conducted research in ophthalmological chemistry at two universities were not substantiated by the institutions concerned. He has, however, tried his hand at a variety of scientific undertakings. As noted above, he was an assistant to the late Dr. F. Park Lewis, an ophthalmologist, about 1933, at which time he published a paper on the eye of the trout. Subsequent activities included two appointments as a laboratory technician in pathology, from which he was dismissed for lack of competence and for unreliability due to drug addiction, and brief experience in research in underwater sound. In 1944 he posed as a pathologist in Florida and, after pleading guilty on three counts of forging prescriptions for narcotics, was sentenced to serve five years on the first count and five on the second, the sentences to run consecutively. About one year later he was paroled. This parole was revoked in 1948, excessive use of alcoholic drinks, suspected use of narcotic drugs, and issuing of bad checks were given as the reasons. It was following a second parole in 1949 that he engaged, with private

sponsorship, in his recent studies on experimental cataract in the rat.

In a chance meeting with Shropshire, a New York business man, Mr. Saul Gaynes, became interested in the financial possibilities of the fish lens preparation. Clinical trials were begun by his brother, Dr. Ginsberg, a general practitioner, and Dr. Jacob, an internist. Encouraged by the early reports, Gaynes and Shropshire incorporated the Kortright Industries to manufacture and sell the preparation. With three others they also established the Cataract Institute, as a nonprofit corporation to conduct research on the pathogenesis and therapy of cataract, and Shropshire was given a five year contract as consultant. A third physician later joined the group, Dr. Jacob Weynert, an orthopedist. For a time patients were examined by opticians in the employ of a New York optical company.

In summary, the committee found nothing in the theoretical background or in the experimental and clinical results of this therapy to recommend it. It did, however, find evidence that the treatment might seriously interfere with the subsequent surgical removal of the cataracts that it had failed to cure. In view of these facts, the committee adopted the following statement of its conclusions:

"Because of the total lack of evidence that the lens antigen treatment of cataract described by Mr. R. F. Shropshire (*Science* 12 September 1952) has any efficacy, because adequate evidence is now available to the Committee that it is, in fact, without demonstrable efficacy, and because treatments of this type have been thoroughly investigated in the past and proved not only invalid but potentially dangerous to the patient, this Committee does not recommend further investigation of this treatment by any agency."

9. Posner, A. Complications Following Injection of Fish Lens Protein for Cataract. *J. A. M. A.* 151: 317 (Jan. 24) 1953.

Laboratory Data and Clinical Judgment.—The question sometimes arises as to what extent can one substitute laboratory data for clinical judgment. Also, to what extent can clinical experience concerning the usual course of a disease replace laboratory data. It is apparent that, in general, these two sources of information must be correlated and integrated with one another. It is only through such a combination that one can provide the best possible care for the patient.

The doctor must remember that laboratory data are not necessarily correct. It is necessary to be sure that only verifiable information shall enter into the reasoning of the physician. Abnormal results that may influence diagnosis or therapy should be thoroughly established and verified, particularly if they seem inconsistent with the rest of the laboratory data and clinical picture. It is surprising how often isolated determinations are used as a basis for diagnosis and medication without adequate verification. Not only do analytical errors occur, but there are errors in the collection and preservation of specimens. For example, chloride, carbon dioxide and pH values may be misleading if the blood is not collected correctly. Twenty-four hour urine specimens are very frequently unreliable as indicated by wide variations in creatinine excretion on successive days in the same individual. Furthermore, a specimen may have been collected at a time that was not representative of the patient's condition.—S. Freeman, M.D. *Relating Biochemistry to Clinical Judgment, The Illinois Medical Journal*, May, 1953.

COUNCIL ON PHARMACY AND CHEMISTRY

The following abstract of recent nomenclature decisions of the Council is authorized for publication

R T STORMONT, M D, Secretary

NEW GENERIC AND BRAND NAMES RECOGNIZED BY THE COUNCIL

The Council collaborates with manufacturers in the selection of generic and brand names for marketed drug preparations presented for acceptance and also for new products still under development or clinical trial. The last report on such names appeared in *THE JOURNAL*, March 21, 1953, page 1000.

The following abstract lists the generic designation, the chemical name, where necessary for information, and the brand name or names simultaneously recognized for the stated firms. In general, a generic name should bear recognizable relation to the chemical name and conform as closely as consistent with brevity and practicality to existing systems of scientific nomenclature. The chief requirement for a brand name is that it should not be therapeutically suggestive.

The listing of a brand name is not to be construed as indicating Council acceptance of the product itself. Products accepted for inclusion in New and Nonofficial Remedies are announced separately.

ANTIHEMOPHILIC PLASMA (HUMAN) for a preparation of human plasma designed to preserve the antihemophilic globulin component

ARSTHINOL (formerly **MERCAPTOARSENOL**) for 2-(3'-acetamido-4'-hydroxyphenyl)-1,3 dithia 2 arsacyclopentane 4-methanol Balarsen (Endo Products, Inc)

AUROTHIOGLYCANIDE for aurothioglycolanilide Lauron (Endo Products, Inc)

CHLOROPROCAINE PENICILLIN O for the chloroprocaine salt of penicillin O. Cer O Cillin Chloroprocaine (The Upjohn Company)

CHLORQUINALDOL for 5,7-dichloro 8 oxyquinaldine Sterosan (Geigy Pharmaceuticals)

FUMAGILLIN for the antibiotic produced by certain strains of *Aspergillus fumigatus* Fumidil (Abbott Laboratories)

LEVORPHAN TARTRATE for levo-3 hydroxy N-methylmorphinan tartrate Levo-Dromoran Tartrate (Hoffmann LaRoche, Inc)

NEOMYCIN SULFATE for the antibiotic produced from cultures of *Streptomyces fradiae*

PRAMOXINE for γ -morpholinopropyl 4-n butoxyphenyl ether Tronothane (Abbott Laboratories)

PRIMOSTRUM for a preparation of primiparous colostrum Quest (General Pharmacal Corporation)

RACEMORPHAN HYDROBROMIDE (formerly **METHORPHINAN HYDROBROMIDE**) for dl 3 hydroxy N methylmorphinan hydrobromide Dromoran Hydrobromide (Hoffmann LaRoche, Inc)

SOMATOTROPIN for the somatotropic ("growth") hormone derived from the anterior pituitary gland

STANOLONE for androstan 17(β)-ol 3-one Neodrol (Foundation Laboratories, Inc Syntex)

STILBAMIDINE ISETHIONATE for 4,4'-stilbenedicarboximidine di-(β) hydroxyethanesulfonate

SUCCINYLCHOLINE CHLORIDE for diacetylcholine dichloride Anectine Chloride (Burroughs, Wellcome & Company)

TOLAZOLINE HYDROCHLORIDE for 2 benzyl 2-imidazoline hydrochloride Priscoline Hydrochloride (Ciba Pharmaceutical Products Inc)

REPORT TO THE COUNCIL

The Council has authorized publication of the following report from the Committee on Pesticides

R T STORMONT, M D, Secretary

The following report is the eleventh in a series of published statements by the Committee on Pesticides. Information on previous reports may be obtained from the Committee office

BERNARD E CONLEY, Secretary,
Committee on Pesticides

TOXICOLOGY IN MEDICAL CURRICULUM

Growing recognition of the health problems of pesticides and other commonly used chemicals found on the farm and in the home has fostered numerous suggestions for informing physicians about those products that have obvious or latent potentialities for harm. Greater emphasis on the pharmacological and toxicologic properties of many of the newer agents is being given at medical meetings, in professional journals, and, to some extent, in undergraduate and postgraduate instruction. Despite this activity, a tendency exists to dismiss medical problems involving nondrug compounds as the concern of the rural practitioner or the industrial physician. This attitude is both unjustified and unrealistic in view of the widespread use of pesticidal and other household chemical products.

Exposure to chemical substances capable of causing injury is no longer simply an agricultural or industrial hazard. It exists in and around the home—on the pantry shelf and in the cellar, utility room, garage, tool shed, or workshop where chemical products are employed for the pursuit of a hobby, repair of the premises, or for the cleaning, deodorizing and disinfecting of household goods. Many of these products contain essentially the same chemicals as those encountered in agriculture or industry yet users are often ignorant or neglectful of the hazards attending their misuse.

Practicing physicians as well as medical students should be informed of the dangers of widely used, nonmedicinal chemicals, and should be familiar with methods for the prevention and treatment of accidental poisoning. The great influx of agricultural, industrial, and household chemicals during the last decade taxes the capacities of even those with a special interest in these compounds to keep abreast of current information. An unprecedented demand has arisen to include additional subjects in pharmacology in the medical curriculum. Nevertheless, the increase in the number and availability of poisonous substances in general use warrants not only the interest and attention of all members of the medical community but also favorable consideration of every practical measure for increasing the medical profession's knowledge of these substances.

On several occasions the American Medical Association has officially taken cognizance of this matter. In November, 1948, a Conference on the Health Hazards of Pesticides was called, which subsequently led to the formation of the Committee on Pesticides. A resolution was adopted by the House of Delegates in December, 1951, calling for the accumulation and dissemination of information on potentially poisonous household products. In addition, a statement was presented by the Committee on Pesticides before the 1953 annual meeting of the American Society for Pharmacology and Experimental Therapeutics, urging greater consideration of pesticides and related products in the pharmacology programs of medical schools. These actions represent informed opinion on the need for greater awareness of the health problems of commonly used chemicals.

In the field of pest control compounds, this matter is receiving wide attention. The Committee on Pesticides periodically publishes comprehensive reviews on the pharmacology and toxicology of recent agents that have received general acceptance. To assist instructors in pharmacology, the Committee has prepared outlines of information for short and more extensive lectures on pesticides and related materials for use in teaching. These, and the articles that the Committee has published in *THE JOURNAL*, are available on request.

THE JOURNAL

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A MEDICAL FISH STORY

A report of the Committee on Ophthalmology of the National Research Council, Division of Medical Sciences, on the fish lens protein treatment for cataract appears elsewhere in this issue (page 707). As is mentioned in the report, an investigation was made because of widespread public interest in what appeared to be an escape from necessary surgery in the treatment of cataract. Such interest resulted from newspaper stories, which, unfortunately, aroused false hopes in many persons. These stories were based on a report in *Science*, a reputable scientific weekly, in September, 1952.¹ Since that time two or three physicians in the New York metropolitan area have treated many patients. THE JOURNAL has published an earlier warning² of possible untoward results of this injection therapy, and the dangers of this therapy are again mentioned in a clinical note in this issue (page 698).

The principal author of the *Science* report is, according to most recent authentic information, in prison in Florida, awaiting a hearing on the matter of revocation of his parole for alleged violation of the terms thereof. Presumably, these alleged infractions did not involve the matter of participation in the treatment of persons with cataracts with what may well have been contaminated fish lens protein material. Such activity would, however, appear to be the most serious aspect to be considered, from the standpoint of those who received the treatment. His medical confrères should consider seriously these effects.

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NUTRITION AND APOENZYMES

One of the most widely used criteria of nutritive success or failure in experimental nutrition has been the change of body weight. Indeed, the entire concept of indispensability of a given dietary factor rests largely on the maintenance or failure to maintain an increase of body weight in young animals or a steady state in adults. This change in mass in experimental animals is tacitly attributed largely to tissue protein, a concept greatly fortified by the demonstration¹ of the large loss of protein from various tissues of the body during relatively brief periods of inanition. Later it was shown² that in a fast of seven days not only the body weight decreased but also a loss of hepatic protein and a decrease in concentration of various enzymes of the liver occurred. Although these losses in hepatic enzymes are greater than the loss of liver protein, they are related to each other.³

When liver tissue is homogenized to a cell-free preparation, the material can be separated mechanically into a nuclear fraction, the large granular fraction or mitochondria, and the residue. An assay of the fractions for succinic dehydrogenase, cytochrome oxidase, and adenosinetriphosphatase shows that these enzymes occur in highest concentrations in the mitochondrial fraction.⁴ Histological examination of liver homogenates shows that during inanition the mitochondria may practically disappear. It appears, therefore, that in a condition of protein starvation both the chemical and the structural features of cellular enzyme activity may be affected.

In recent studies on the effect of dietary protein on the activity of the enzyme xanthine oxidase of the liver, it was shown that the availability of the amino acids in the protein of the ration influences the enzyme.⁵ The xanthine oxidase concentration in this tissue is extremely dependent on the presence of methionine⁶ and, to a lesser extent, of tryptophan.⁷ In all cases studied, realimentation with adequate quantity and quality of dietary protein reestablished the original level of enzyme activity.

Inasmuch as xanthine oxidase is an enzyme complex, a decrease of activity may be due to a deficiency either of the coenzyme part or of the apoenzyme (protein) part. That the diminution of hepatic xanthine oxidase activity is due to the lack of the apoenzyme component has been strongly suggested by experiments⁸ in which the inactive homogenate from the livers of rats on a protein-free diet was supplemented with an appropriate coenzyme preparation without noticeable effect on the activity. Again, when diammonium citrate or urea was added to diets containing the 10 essential amino acids not only the previously demonstrated stimulation of body growth was observed but the level of hepatic xanthine oxidase activity was maintained at the normal level.⁹ The foregoing observations indicate that the formation of enzyme complexes is closely dependent on the adequacy of protein nutrition, probably because of the amino acid requirements for the elaboration of the apoenzyme (protein) part of the enzyme system. The extreme sensitivity of the enzymes that have been studied to the availability of dietary amino acids suggests that many cellular enzymes, both mitochondrial and cytoplasmic, are far more labile than the structural proteins of the cell. Since enzymes are the mediators of metabolism, the importance of these effects is obvious.

WHOLE LIFE RECORDS

Medical records are kept for two purposes to aid in the care of the patient at hand and to provide data from which new knowledge can be gained, for the benefit of future patients. As the goals of medical practice broaden, medical records must become more comprehensive. For the physician whose sole aim is the treatment of diseased persons, a simple record of the course of the disease and the therapeutic agents used may be adequate, but, when the goal is broadened to include the prevention of disease and the cultivation of optimum physical and mental health, then more data on the patient and his environment must be recorded. The many hereditary, congenital, metabolic, traumatic, psychological, climatic, occupational, social, and other factors that may contribute to the production of health or disease must be investigated and recorded so that their medical significance can be determined. With knowledge gained in this way it may eventually become possible to predict, and perhaps to prevent, the occurrence of some of the chronic, degenerative, and neoplastic diseases that form such an important part of medical practice today. Only through the analysis of large numbers of such records, however, will it be possible to evaluate adequately the role of many of the factors mentioned.

The accumulation of large numbers of such comprehensive lifetime medical records from different segments of the population is a tremendous task, but it is being undertaken in a number of research centers in this country. Dr. C. Ward Crampton¹ has presented to the New York County Medical Society a plan that he believes would enable all practitioners to accumulate whole life records. This plan proposes that all persons be given an exhaustive physical and functional examination at six points in life: birth, admission to school, puberty, marriage, climacteric, and old age. At the same time a cumulative and comprehensive personal and medical history should be obtained. These examinations would supplement but not replace the more limited annual physical examination, which usually is used for immediate diagnosis and treatment rather than for long-range research and charting of the patient's future medical course. The examination at birth would normally be preceded by prenatal examination of the mother to determine whether there were any infectious, toxic, nutritional, or other factors that might influence the development of the fetus; a complete family history would also be taken at this time. The preschool examination would include tests of mental, physical, and social development, and a record of personal adjustment to date. At puberty and the climacteric, emphasis would be placed on endocrine and psychological adjustment, and the premarital examination would be regarded as a preparental examination as well. The geriatric examination, performed at about the patient's 65th birthday, would afford an excellent opportunity for the physician to detect early deterioration or chronic illness and correlate it with factors found in earlier examinations. At the time of each examination, the patient's entire life record would be reviewed and necessary corrective or preventive measures instituted. A condensed or coded version of the history might be given to the patient so that he could present it to any physician in an emer-

gency, or to examiners or counselors at schools, camps, and employment or military agencies. Additional data and comments might be added by these examiners. At the person's death the comprehensive history could be correlated with autopsy findings, when possible, and the whole made available to medical statisticians for analysis.

This program deserves careful study. Whether it could be made practical on a large scale, outside of research centers, depends on the thoroughness of the original planning, the interest and enthusiasm of all participating physicians, and the time and facilities available to them for the examinations. Unless a carefully prepared standard form were used, records prepared by many examiners might vary so much in content and detail that they could not be compared directly. Without adequate time or motivation the examiner might fail to fill out a standard form in sufficient detail. Without special laboratory and diagnostic facilities and the services of several consultants, the examiner might not be able to study many important antecedents of disease. None of these problems is insurmountable, however, and it is probable that a program of this type, if properly executed, would yield rich dividends.

VERRUCA VULGARIS VIRUS

There is abundant evidence that the common wart is caused by a filtrable agent. On the hypothesis that this agent may be a virus, Bivins¹ of Rutgers University attempted its cultivation by inoculation on the chorioallantoic membranes of chick embryos. He removed a wart from his own hand by curettage and ground it to a fine powder with sterile sand. This powder was suspended in 3 to 4 cc of nutrient broth and frozen. Twenty-four hours later the material was thawed and centrifuged, and to 1 cc of the resulting supernatant fluid there was added 0.2 cc of 85% sodium chloride containing 10,000 units of penicillin and 10 mg of dihydrostreptomycin. The resulting mixture was inoculated in 0.2 cc doses on each chorioallantoic membrane of a group of 10-day-old embryonated chick eggs.

Eggs examined on the seventh day after inoculation showed lesions at the inoculation site varying from sandpaper-like granulations to one or more hard whitish "pearls" about $\frac{1}{8}$ in (0.32 cm) in diameter. Subsequent passage of the material from these pearls routinely showed a production of dense whitish or greenish warts varying from $\frac{1}{16}$ to $\frac{3}{16}$ in (0.16 to 0.48 cm) in diameter, which occasionally coalesced to form a yellowish mass resembling necrotic tissue. Since Berkefeld filtrates from these warts reproduced similar lesions in 10-day-old chick embryos, it seems probable that a virus had been cultivated.

8 Litwack G, Williams J N Jr, Feigelson, P and Elvehjem C A. Xanthine Oxidase and Liver Nitrogen Variation with Dietary Protein. *J Biol Chem* 187: 605 (Dec) 1950.

9 Litwack G, Williams J N Jr and Elvehjem C A. Roles of Essential and Non Essential Amino Acids in Maintaining Liver Xanthine Oxidase. *J Biol Chem* 201: 261 (March) 1953.

1 Crampton C W. Whole Life Records for Whole Life Service. Legislative Document 35 in Age is No Barrier. Report of the New York State Joint Legislative Committee on Problems of the Aging 1952.

1 Bivins J A. The Culture in the Developing Chicken Embryo of a Filtrable Agent from *Verruca vulgaris*. *Science* 117: 300 (March 20) 1953.

ORGANIZATION SECTION

THE ANNUAL MEETING IN NEW YORK

The 102nd annual meeting of the American Medical Association passed on into history on June 5, leaving New York City, perhaps, a little surprised at the record breaking attendance and all of the registrants grateful to the great metropolis for its hospitality. The attendance at this meeting was the largest in the history of the Association and it was no doubt the largest medical meeting that this world has ever seen. The total registration, including guests and exhibitors, was 48,980, of whom 17,958 were physicians. One hundred years ago when the Association first met in New York City, the attendance was 573. The Association met there again in 1864, again in 1880, at which meeting THE JOURNAL of the American Medical Association was authorized, again in 1917, and again in 1940, when the number of physicians registered was 12,864. At the centennial meeting of the American Medical Association in Atlantic City in 1947, 15,667 physicians registered, making that meeting the largest one up to that time. Despite the heavy registration in New York, with a large well-organized staff and IBM machines, registration proceeded smoothly and at a faster rate than ever before. The 21 scientific sections held their individual meetings at six different hotels and at Town Hall in Manhattan, some a considerable distance apart, but fortunately on the lower floors of the tall buildings. The scientific and technical exhibits were at the Grand Central Palace and the House of Delegates' meetings at the Waldorf-Astoria Hotel. Some 400 papers were presented before the various sections of the scientific assembly. There were 260 scientific exhibits and 370 technical exhibits, and medical motion picture and colored television programs were presented daily. Many special groups, not officially connected with the A. M. A., held their meetings preceding or immediately following the great event. Among these special groups were the American Rheumatism Association, American Diabetes Association, American Geriatrics Society, American Academy of Tuberculosis Physicians, American College of Chest Physicians, American Society for the Study of Sterility, American Medical Women's Association, the Society for Vascular Surgery, the Endocrine Society, the Society for Investigative Dermatology, and the conference of presidents and other officers of state medical associations. Perhaps the strongest single impression made on one attending this assembly was the vastness of medicine today and the far-reaching influence it has on the welfare and the sociological and economical aspects of the lives of the people of the United States.

Elsewhere in THE JOURNAL (page 719) is the first installment of an abstract of the proceedings of the House of Delegates. The remainder of the abstract will appear in succeeding issues of THE JOURNAL, whereas the entire proceedings will appear in a booklet in the near future and will be available on request from the office of the Secretary of the American Medical Association.

Many failed to realize that this meeting was the centennial for one held in New York in 1853, following which there was a train wreck in which many physicians were injured and killed. The accident occurred May 6 at Norwalk, Conn. The train ran off a drawbridge into the river. In the *New York Daily Times* is a report of the tragedy and the names of physicians are frequently mentioned. How many were drowned and how many died of injuries never was determined, but a total of several score lost their lives.

At the 1853 meeting a dinner was provided by the physicians of New York City to the American Medical Association at Metropolitan Hall. The bill of fare, a photostatic copy of which was supplied to the Editor by Alfred A. Doran of New York, offered three soups, four fish, six boiled meats, eight roasts, and two cold dishes, including boned turkey and boar's head. Then followed the entrees (a choice of 16), game (a choice of 5 including grouse, red heads, broad bills,

brandt, and squabs), and 10 vegetables, pickles, and olives. Next the diner could choose from 11 pastries and confectionery, and then any one of five ices. If still plagued with an insatiable appetite for more, he could have fruit (seven varieties) and finally coffee.

The program for the 1953 annual meeting appeared in the April 11 issue of THE JOURNAL. This at best, however, can provide only a hint of the immensity and complexity of the meeting, at which nearly 49,000 physicians and guests were registered. Scientific papers, exhibits, television shows, motion pictures, radio broadcasts, fraternity meetings and alumni reunions, and activities of the House of Delegates provided a never-ending display of physicians at work and at play. For example, to consider only one phase of the social activities, there were more than 40 fraternity and alumni association luncheons and dinners.

The address of the incoming President, Dr. Edward J. McCormick, was published in THE JOURNAL, June 6. He was inaugurated on June 3, 1953, before the House of Delegates and several hundred visitors. At the same time the ceremony was transcribed for broadcasting the following evening over more than 300 stations of the American Broadcasting Company network. Another highlight of the evening was the recording of the show "Dr. Christian" featuring Jean Hersholt. Following the show Jean Hersholt was given a citation for his portrayal of the family doctor. Another activity that long will be remembered by those in attendance was the music provided by the Doctors' Symphony Orchestra of New York.

OFFICERS OF THE ASSOCIATION

Dr. Walter B. Martin of Norfolk, Va., was elected 1954-1955 president. Elected as Vice President for 1953-1954 was Carl H. Gellenthien of Valmora, N. Mex. Re-elected to office were James R. Reuling, Bayside, N. Y., Speaker of the House of Delegates, E. Vincent Askey, Los Angeles, Vice Speaker of the House, George F. Lull, Chicago, Secretary, J. J. Moore, Chicago, treasurer, Edwin S. Hamilton, Kankakee, Ill., and Gunnar Gundersen, La Crosse, Wis., members of the Board of Trustees. To fill the unexpired term of Dr. Martin, Julian P. Price, Florence, S. C., was elected.

Dr. Edward J. McCormick, Toledo, the new President of the American Medical Association, announced to the House that he had selected Dr. George A. Woodhouse, Pleasant Hill, Ohio, to membership on the Judicial Council, the 'supreme court of medicine' within the American Medical Association. Dr. Woodhouse succeeds Dr. J. B. Lukens, Louisville, Ky. Members of the Judicial Council are selected by the President of the Association.

The House voted the following to membership on standing committees of the American Medical Association:

For the Council on Scientific Assembly: Drs. Henry R. Viets, Boston, and Charles H. Pfifer, Chicago, were both re-elected to terms ending in 1958.

For the Council on Medical Education and Hospitals: Drs. Victor Johnson, Rochester, Minn., and L. S. McKittrick, Boston, were both re-elected for terms to end in 1958.

On the Council on Medical Service: Dr. Louis M. Orr, Orlando, Fla., was elected to succeed Dr. James Q. Graves, Monroe, La., and Dr. Robert B. Homan, El Paso, Texas, was elected to succeed Dr. Jesse D. Hamer, Phoenix, Ariz. Their terms run until 1958. On the Council on Constitution and Bylaws: Dr. Stanley H. Osborn, Hartford, Conn., was re-elected. His term will run until 1958.

ACTIONS OF HOUSE OF DELEGATES

The House of Delegates took important policy actions on veterans' medical care, medical ethics, osteopathy, intern training and on subjects ranging from medical education to public relations. Giving unanimous approval to a recommendation from its Reference Committee on Insurance and Medical Service, submitted as a substitute for eight different resolutions concerning the treatment of non-service-connected disabilities by the Veterans Administration, the House adopted the

policy that such treatment should be discontinued except in cases involving tuberculosis or psychiatric or neurological disorders

In taking this action the House reaffirmed and adopted the following recommendation originally presented at the Denver meeting last December by the Special Committee on Federal Medical Services

Your Committee recommends with respect to the provision of medical care and hospitalization benefits for veterans in Veterans Administration and other federal hospitals that new legislation be enacted limiting such care to the following two categories

(a) Veterans with peacetime or wartime service whose disabilities or diseases are service incurred or aggravated, and

(b) Within the limits of existing facilities to veterans with wartime service suffering from tuberculosis or psychiatric or neurological disorders of non-service connected origin, who are unable to defray the expenses of necessary hospitalization

Your Committee recommends that the provision of medical care and hospitalization in Veterans Administration hospitals for the remaining groups of veterans with non service connected disabilities be discontinued and that the responsibility for the care of such veterans revert to the individual and the community, where it rightfully belongs"

The reference committee report adopted by the House expressed complete accord with the present program of hospital and medical care for veterans with service-connected disabilities, and also included this statement

'It is the belief of your committee that the medical profession must concern itself, not with the numbers of 'chiselers' in Veterans Administration hospitals nor with the efficacy of the Veterans Administration in the administration of enabling legislation, but rather with the broad question of whether such legislation is sound, whether the federal government should continue to engage in a gigantic medical care program in competition with private medical institutions and whether the ever increasing cost of such a program is a proper burden to impose on the taxpayers of the country. A consideration of this problem must of course be predicated upon a concern for the health of the entire population and not just a particular segment"

Eleven resolutions dealing with publicity regarding unethical conduct of physicians were brought before the House as a result of recent newspaper and magazine articles reporting statements attributed to an official spokesman of an allied medical organization. The House adopted a committee report which recommended no action on the 11 resolutions but which reaffirmed the supremacy of the A M A code of ethics and urged that the Judicial Council study suggested revisions concerning methods of billing.

'The Principles of Medical Ethics as formulated, interpreted and applied by the American Medical Association must be considered the only fundamental and controlling application of ethics for the entire profession,' the reference committee report said. Any statement relating to ethical matters by other organizations within the general profession of medicine advances views of only a particular group and is without official sanction of the entire profession as represented by the American Medical Association"

Condemning generalized statements regarding the ethics of physicians, the report went on to say

"Your reference committee believes that the harm done to the public and to the profession by the current articles which lower the confidence patients have in their doctors cannot be objectively evaluated. This highlights the fact that, when individuals or groups without official status in the American Medical Association utter or publish ill-considered statements, the result too often is that the confidence of the public in the medical profession is placed in jeopardy

The reference committee believes that the members of the House of Delegates have demonstrated their devotion over the years to the principles of American democracy. This devotion includes the right of free speech. With this, the Committee agrees unqualifiedly

Broad generalizations, ill advised and poorly prepared statements that often fail to convey the intended meaning are most unfortunate and are to be deplored. Destructive critical comments serve no useful purpose. Your committee has the utmost

confidence that the great majority of our members are entirely capable of avoiding these pitfalls without additional advice from this committee"

The report also urged that the American Medical Association continue to inform its members and the public of its stand on matters pertaining to abuses and evils in the practice of medicine

The most controversial issue brought before the House at the New York meeting proved to be the question of immediate or deferred action on the report of the Committee for the Study of Relations Between Osteopathy and Medicine. The House, after two hours of vigorous, spirited debate, adopted the majority report of the Reference Committee on Miscellaneous Business, thereby postponing action until the June, 1954, meeting and allowing further study by the delegates and the state associations. The recommendations of the Committee for the Study of Relations Between Osteopathy and Medicine were as follows

'1 That the House of Delegates declare that so little of the original concept of osteopathy remains that it does not classify medicine as currently taught in schools of osteopathy as the teaching of 'cultist healing

'2 That the House of Delegates state that pursuant to the objectives and responsibilities of the American Medical Association, which are to improve the health and medical care of the American people, it is the policy of the Association to encourage improvement in the undergraduate and postgraduate education of doctors of osteopathy

3 That the House of Delegates declare that the relationship of doctors of medicine to doctors of osteopathy is a matter for determination by the state medical associations of the several states and that the state associations be requested to accept this responsibility

'4 That the Committee for the Study of Relations Between Osteopathy and Medicine or a similar committee be established as a continuing body"

A minority report of the reference committee urged approval and adoption of those recommendations at the New York meeting. The majority report, which ultimately was adopted, included the following recommendations by the Board of Trustees

'Because of the length of the report and the controversial nature of the subject, the Board feels that the House should have adequate time for its study and that the state associations should have opportunity to express their opinions

Therefore, it is recommended that the Committee be continued but that action on the report be deferred until the June, 1954, session. It is suggested that at that time the House be prepared to answer the following questions

'1 Should modern osteopathy be classified as 'cultist' healing?

'2 Since the objectives of the American Medical Association include improvement in undergraduate and postgraduate education, should doctors of medicine teach in osteopathic schools?

"3 Should the relationship of doctors of medicine to doctors of osteopathy be a matter for determination by the several state associations?"

Five resolutions came before the House with regard to the Essentials of an Approved Internship, which were adopted at the December, 1952, meeting. The Reference Committee on Medical Education and Hospitals recommended a substitute resolution that was adopted by the House after considerable discussion. The action abolishes the rule whereby approval may be withdrawn from an internship program that for two consecutive years fails to obtain at least two thirds of its slated complement of interns. The resolution also calls for further study of the essentials by a committee appointed by the Speaker of the House, at least half of whom are physicians in private practice not connected with medical schools or affiliated hospitals

Among the many other actions taken, the House reaffirmed its endorsement of the principles embodied in Senate Joint Resolution No. 1 concerning international treaties or agreements which interfere with domestic laws or rights, and it approved a resolution deploring a derogatory article about the American Medical Association that appeared recently in the

Home Life Magazine The latter resolution was referred to the Board of Trustees for implementation

Other reports considered by the House included those submitted by the Council on Medical Education and Hospitals and the Committee on Blood With more than four score resolutions to study, the House heard recommendations on subjects ranging from nursing problems to the financial support of medical education, from the status of oral (dental) surgeons to the training of medical record technicians, from gamma globulin to narcotic prescriptions, from the advertising of medical products to the portrayal of physicians in television and radio advertising, from professional liability insurance to the medical care of veterans and of their dependents, and from social security programs to the selection of interns

Without question all physicians and visitors to the 1953 annual meeting of the American Medical Association can look back with pleasure on the weather, the hospitality of the New Yorkers, the activities at the scientific and technical meetings, and the diligence of the House of Delegates Perhaps that is why so many already are planning on attending the midyear meeting that will be held in St. Louis, Dec 1-4, 1953

SCIENTIFIC EXHIBITS

The 260 scientific exhibits on the fourth floor of the Grand Central Palace were reached with the aid of a slow and crowded elevator, while many of the younger physicians took to the stairway Of all of the various meeting places the Grand Central Palace was most heavily attended The exhibits attracted thousands of physicians who were eager to learn of medical advances Their intense interest was obvious, as was the enthusiasm of the exhibitors who stood hour after hour answering questions and explaining techniques, charts, graphs, and colored illustrations More than a thousand physicians and scientists voluntarily gave their time and energy to demonstrate these exhibits for the benefit of their colleagues The main emphasis was placed on aspects of medicine of particular interest to the general practitioner Of special interest was an exhibit based on a survey of 400 general practitioners which showed the instruments and drugs deemed most essential for a doctor's bag to enable him to handle almost any emergency Among the most popular demonstrations was the special exhibit on fractures which the Association has conducted annually for the last 27 years This exhibit has become more popular in recent years, no doubt, because of the more numerous fractures caused by traffic, industrial, and home accidents Several experts simultaneously demonstrated how to reduce, splint, and apply casts to different kinds of fractures Another popular exhibit was the mechanical heart, which has already been used clinically to bypass the right or left side of the heart, thus freeing it of excessive blood while the surgeon operates within the heart The recent progress in heart surgery was demonstrated in several exhibits and was further highlighted by the award of the Distinguished Service Medal of the American Medical Association this year to Dr Alfred Blalock of Baltimore, one of the pioneers in intracardiac surgery What can be done to restore heart action in temporary stoppage during surgical operations was demonstrated manually A popular exhibit was the demonstration by the Council on Physical Medicine and Rehabilitation, in cooperation with the American National Red Cross, of the new method of artificial respiration reported on Dec 3, 1951, in *THE JOURNAL* Some 27 scientific exhibits on various aspects of the cancer problem were presented by research groups, leading clinics, and specialists from all parts of the United States The special exhibit on fresh pathology was of great interest, showing lesions in various organs which had just been removed at operations in the city and furnished by the New York Pathological Society, whose demonstrators pointed out and discussed the lesions Of special interest was the exhibit of the section on dermatology by Pomerat, Lefebvre and Smith of the University of Texas Medical Branch at Galveston, which among other things showed the chromosomes in malignant cells In his paper read on Monday in the General Scientific Meeting at the Commodore Hotel, Dr Pomerat threw on the screen a specimen containing chromosome y which enabled the surgeon to decide what kind of operation to perform in a case of hermaphroditism Dr Pomerat believed this was the first instance of this kind Each of the sections of the scientific assembly had exhibits

dealing with their particular specialty and in addition there were exhibits by small groups and individuals A committee of the Council on Scientific Assembly awarded a gold medal to Dr Oscar V Batson of the University of Pennsylvania for his exhibit on "The Anatomy of Veins" The second gold medal, the Billings Medal, awarded for excellence of correlated facts and presentation, went to Drs J Scott Butterworth, Charles A Poindexter, and C E Peterson of the New York University Postgraduate Medical School and the American Heart Association for an exhibit on the cardiac silhouette The award of other medals, certificates of merit, and honorable mention will be reported in a special section of *THE JOURNAL* next week or the following week The Council on Scientific Assembly deserves praise for another excellent program of scientific exhibits

TECHNICAL EXHIBITS

On the first three floors of the Grand Central Palace were nicely arranged 370 technical exhibits to which were assigned some 2,000 persons to answer questions about drugs, surgical and diagnostic instruments, medical books, appliances, and many other products Here the doctor could peruse as many as he liked of hundreds of new medical books and decide which, if any, he desired to purchase The same was true of hundreds of surgical instruments on display Among the precision instruments was the Blaisdell Operative Proctoscope for polyp surgery, an instrument small enough in diameter to preclude injury and large enough to allow the use of auxiliary instruments and which provided an easier method of delivering a polyp into the surgeon's grasp The improved Leitz Capillary Microscope makes simple the study of arteriolar changes and more easily seen the variations in capillary structure in the nail bed and the conjunctiva Among the new aids for the orthopedist was Zimmer's Gable-McKinney lightweight walker, which has a stair-climbing feature, an added convenience of self support and provision for sitting down to rest Shown was Baird Associates' Flame Photometer, said to be the first means devised for the instantaneous measurement of electrolytes in blood and body fluids There was a new Zeiss Colposcope for exploring the surface of the vagina to aid in diagnosing early stages of carcinomatous epithelium The Haemoscope exhibited permits a red blood cell count in a fraction of the time required by the usual method This automatic photronically operated instrument achieves a blood count in about 10 seconds after dilution The technical exhibits were in fact a "medical merchandise mart" where doctors saw a great concentration of new items, from which they could select any that might aid them in their daily work

GENERAL SCIENTIFIC AND SECTION MEETINGS

The general scientific meetings were held all day Monday and Friday forenoon in the Grand Ballroom of the Hotel Commodore, where recognized authorities presented résumés on such topics as treatment of Hodgkin's disease and the lymphosarcomas, treatment of advanced mammary cancer, atomic medicine for tomorrow's patients, treatment of the premature infant, treatment for the gastric and duodenal ulcer patient, pregnancy, lactation, growth and aging as special stress factors on nutritional processes, medical management of hypertension, adrenal insufficiency in patients who have taken cortisone prior to surgery, and tissue cultures in the service of clinical medicine It was here that Dr Pomerat showed chromosome y in a slide of a surgically removed specimen Dr Ovid O Meyer of the University of Wisconsin in his discussion considered x-ray therapy still the most effective treatment in Hodgkin's disease

The 21 sections of the scientific assembly each held separate meetings, usually in the ballrooms of the different hotels, although at times some two or three sections came together for a joint meeting The Section on Pediatrics on Thursday afternoon held a joint meeting on poliomyelitis with the Section on Physical Medicine and Rehabilitation and the Section on Preventive and Industrial Medicine and Public Health The speakers discussed differential diagnosis, epidemiological aspects of the uses of gamma globulin, future possibilities of vaccine for the control of poliomyelitis, treatment of the acute phase, and methods of preventing deformity and restoring effective muscle activity

Before the section meetings some 400 papers on clinical and experimental studies, reports of surveys, reports of new drugs and techniques were presented. While only a few of them can be mentioned briefly here, most of them will appear later in detail in *THE JOURNAL*. In the Section on General and Abdominal Surgery meeting at Town Hall, Dr Edgar J Poth of Galveston, Texas, presented an evaluation of antibiotics and sulfonamide drugs as intestinal disinfectants in the preoperative treatment of surgical conditions of the large intestine. He reported that mortality had thus been reduced about 60% during the last decade. Such drugs kill bacteria so that during operations on the bowel, bacteria do not escape into the abdominal cavity and cause peritonitis. Intestinal antiseptics, he said, has been developed to the point where it no longer increases the period of hospitalization and does not delay definitive surgical treatment. He pointed out that the use of intestinal antiseptics has reduced the number of operations necessary in large bowel surgery as well as the period of convalescence in the hospital. In his experience a combination of neomycin and sulfathalidine had proved to be the most satisfactory.

In the Section on Gastroenterology and Proctology, Drs Harry E. Bacon and Howard D. Trimpi of Philadelphia reported on 302 patients with chronic ulcerative colitis, of whom 67 underwent a total of 129 operations, with 5 deaths, 4 deaths occurring previous to 1946 following emergency ileostomies on moribund patients. In the last five years, however, it has been necessary, he said, to perform emergency ileostomies on only two patients, as all of the others came to surgery in time for whole blood transfusions and antibiotic and electrolyte administration prior to operation. Such preoperative preparation was done in cooperation with an internist in all cases and often with the opinions also of the gastroenterologist and the psychiatrist. With such cooperation, it has been possible to perform ileostomy and colectomy in one stage in the majority of patients. No deaths occurred in this latter group. Of 34 patients undergoing complete removal of the colon and using an artificial opening through the abdominal wall, 85.3%, Dr Bacon reported, were completely rehabilitated.

Before the same section Drs C. Wilmer Wirts, Martin E. Rehfuess, and Herbert A. Yantes of Philadelphia reported that corticotropin is an effective adjunct in the treatment of ulcerative colitis. They gave this drug to 40 patients who were followed up from one to two and a half years. None of these patients had surgical treatment and all but one have returned to their occupations. They had no serious reactions to the use of corticotropin, probably because of the small doses given and the short period of administration, which rarely exceeded three weeks. They do not consider this drug a cure as about half of the patients treated had a recurrence. Early relapse, however, is amenable to re-treatment with corticotropin. During the acute stage the patients received in addition to corticotropin such supportive measures as would ordinarily be given in medical management.

In the Section on General Practice at the Hotel Biltmore, Drs Evelynne G. Knouf and Albert G. Bower of Pasadena, California, presented a study of 2,967 patients with measles admitted to the Los Angeles County Hospital over a period of 12 years. A total of 215 of these cases were complicated by encephalitis and in 50 of these a series of typhoid vaccine injections by vein or muscle were given over a period varying from two weeks to four months. In all of the 50 patients on whom treatment was carried out as recommended, there was a return to the clinical normal. The authors said, "so spectacular has been a return to normal in the severe 'vegetative' cases that we must revise our thinking about the brain being permanently destroyed. No patient with encephalitis is considered hopeless, regardless of involvement, until typhoid vaccine has been given a fair trial."

In the Section on Nervous and Mental Diseases, Drs William G. Lennox and Charles H. Markham of Boston called for the elimination of discriminating laws and attitudes against epileptics which, they said, are the heritage of many centuries when there was no treatment for this disease. Thanks to the electroencephalograph and to modern drug and surgical therapy, public prejudices are fading. However, in four states epilepsy, like syphilis and smallpox, is reportable to health officers. Seventeen states prohibit the marriage of epileptics

within the child bearing age. Among the inalienable rights of the epileptic that are being curtailed by law or by public prejudice are the right to learn, to work, and to marry and bear children. They added that while some epileptics should not marry, others whose good genetic qualities more than outweigh the bad quality of epilepsy should marry and bear children. The worst social problem that concerns the epileptic is the discrimination against him in employment. Epileptics, they said, are not necessarily mentally below average. In a study of 600 patients, the average score of those of adolescent age or below was 103.7 and for the older patients 108.1 (100 being the normal average).

In the Section on Anesthesiology at the Waldorf-Astoria Hotel, Dr Harry W. Bowman of Bethlehem, Pa., presented an evaluation of dextran as a plasma volume expander based on a study of more than 500 infusions of dextran given to various types of surgical patients. This study indicated that dextran was extremely valuable in maintaining and saving the lives of such patients until whole blood could be administered. While there is as yet no substitute for whole blood, the author reported that dextran is one of the most satisfactory volume expanders available and should be used in preference to ordinary fluids or plasma, when plasma volume increase is indicated before, during, or after surgery. Dextran has proved of definite value also, he said, in the treatment of total suppression of urinary secretion by the kidney. Combinations of dextran and modified human globin were said to be of definite clinical value in the treatment of emaciated persons, in emergency fluid therapy of burns, and in promoting wound healing post-operatively. Dextran, it was said, would be of extreme value in case of a major catastrophe or in warfare. It can be stored at any temperature except freezing and is immediately available in the liquid state for intravenous administration.

Plasma volume expanders were reported on also in the Section on Military Medicine by Capt John Howard of the Surgical Research Team in Korea and Lieut Col William Crosby of the Department of Hematology, Army Medical Service Graduate School, Washington, D. C. The surgical research team in Korea has been engaged in a study of reactions to wounding and the response to resuscitation of the severely wounded. This team worked in a field laboratory attached to a surgical hospital where casualties were received on an average of three and a half hours after being wounded. They found that many seriously wounded persons can be resuscitated if plasma expanders and whole blood are administered in the ratio of one to one, a method that stretches a limited supply of whole blood. This team believes that the various plasma expanders now available leave much to be desired, but that dextran and modified gelatin promise to be useful when unlimited blood is not available. Plasma expanders can be used as the sole supporting agent during evacuation of casualties from the battle field or during surgical operations on casualties with a blood volume deficit not greater than 1,000 to 1,500 cc. In wounds of greater severity, the use of blood and plasma expanders in a ratio of one to one was useful. Other observations reported by Howard and Crosby was that a person can lose about 25% of his blood volume (about 1,200 cc) before his blood pressure falls. A loss of 40% of the blood volume (about 2,000 cc) is associated with marked decrease in blood pressure. With a loss of 10 to 20% of the blood volume, the autonomic nervous system causes vasoconstriction and increased heart rate so that normal blood pressure is maintained. Thus while the patient has lost blood he has compensated for the loss, however, it is of the greatest importance that the surgeon recognize this state and replace the blood volume deficit before any other therapy is undertaken. Anesthesia for example, converts this compensated state into one of profound shock. Simply to move such patients has a bad effect on blood pressure, especially if the posture of the patient also is changed. They observed time and again that if casualties were transferred on a litter from the receiving ward to the x-ray machine, 20 ft away, a drop in blood pressure was noted. Two such patients died suddenly and autopsy failed to demonstrate any cause of death. This sensitivity to movement emphasizes the need of adequate replacement of lost blood even in patients whose blood pressure appears to be stabilized. They said that to the old adage "splint them where they lie" we should add "transfuse them where they lie."

In the same Section, Brig Gen M S White of the Tactical Air Command and Major Robert W Merkle said that the helicopter, which has been so useful in Korea in evacuating patients from the front to surgical hospitals, can be equally important in civil life in peace time by providing medical evacuation and care in remote areas of our country. The junctional use of helicopters with airliners has possibilities of providing a means of disseminating medical science and care to all areas of the nation and in evacuating thousands of persons or in providing them with medical support in times of disaster.

Dr Daniel S Vaughan Jr of San Jose, Calif, reported before the Section on Ophthalmology that infants having feeding problems should be carefully watched for the presence of xerophthalmia. This condition, resulting from a diet low in vitamin A, if prolonged may cause softening of the cornea and possible perforation. Dr Vaughan observed two cases of xerophthalmia that were the result of antiallergenic diets.

In the Section on Internal Medicine, at the Hotel Commodore, Drs Rulon W Rawson, J E Rall and Jacob Robbins of the Sloan-Kettering Institute, New York, reported on the use of new methods to force formerly untreatable cancer of the thyroid to concentrate iodine. In 26 of 52 patients studied, it was possible to induce the cancer tissue to pick up radioactive iodine, and thus to substantially destroy the cancer tissue. Of 35 patients with widespread cancer of the thyroid treated with radioactive iodine, 51% showed improvement, as measured by partial or complete destruction of cancer lesions. They cautioned, however, against speaking of cures in such patients followed for less than 20 years, also against the use of radioactive iodine in thyroid cancer that has not spread beyond the thyroid gland and in the treatment of widespread cancer that can not be induced to concentrate sufficient quantities of the radioactive material, in the latter instance the radioactive iodine may concentrate in the blood stream and destroy both red and white blood cells and even result in death.

Dr S W Hoobler of Ann Arbor, Mich, in discussing high blood pressure before the Section on Chest Diseases at the New Yorker Hotel, said that most patients suffering from mild forms of high blood pressure need only reassurance and careful observation. However, the small minority of cases in which certain vital organs have been effected urgently need attention and in the latter group the best procedure was sympathectomy, which is effective in 30 or 40% of such patients. If sympathectomy has been found unsuccessful, Dr Hoobler mentioned certain drugs that lower the blood pressure, although all of them have some unpleasant side-effects. After uremia has developed as a result of kidney failure, none of the drugs mentioned, he said, are particularly helpful and some of them may be harmful.

In the Section on Preventive and Industrial Medicine and Public Health, Dr K C Charron, of the civilian defense health planning group in the Canadian Department of National Health and Welfare, pointed out the interdependence of the United States and Canada in the event of war. Observers in the Canadian northland, he said, might well provide the first warning of attack to both countries. We must depend, he said, in large measure on skills that our people already possess, but to these must be added a knowledge of special techniques required for disaster. He said that an effective civil defense health program cannot be developed unless individuals, groups, and the various levels of government assume responsibility and actively participate in its development, it is imperative that the lagging areas accelerate their planning to catch up to the already established units.

THE GOLF TOURNAMENT

About 170 golfers turned out for the 37th annual tournament of the American Medical Golfing Association at the Swinoy Golf Club in Bronxville. The president of the golfing association this year was Dr Thomas A Kyner of Kansas City and the chairman of the Local Committee on Arrangements Dr Joseph E Corr of New York. Dr Gerald F Derick Jr of Hackensack, N J, had the lowest gross score of 76 which entitled him to receive the president's prize, a set of clubs and the honor of having his name engraved on the Will Walter Trophy. The low net score was turned in by Dr L B Miller of Evansville Ind. Other awards

were presented during the evening banquet at the Club House. The 1954 tournament is scheduled for the Olympian Country Club in San Francisco during the next annual meeting of the American Medical Association. For the coming year the president of the golfing association is Dr Edward Campion of San Rafael, Calif, and the president-elect, Dr F O Hendrickson of Philadelphia.

TELEVISION AND RADIO PROGRAM

For the first time medical colored television was projected on two large screens, the telecasts of clinics being transmitted from New York Hospital to the Roosevelt Hotel where the screens were installed. Heretofore, these telecasts had been received on several small screens. Another innovation in this program was the presentation of a panel discussion of the diseases involved before the operations began. The diseases presented in this program were mitral stenosis, cancer of the cervix, peptic ulcer, tumor of the breast, and sinusitis. The television programs were presented for the American Medical Association by Smith, Kline, and French, a Philadelphia pharmaceutical firm, which pioneered the use of this medium in medical education.

A variety of medical motion pictures were presented daily, morning and afternoon, at the Biltmore Hotel. Often the authors themselves were present to discuss their own films. That this type of program was widely appreciated is indicated by the fact that the films were seen during the week by 6,156 persons.

MISCELLANEOUS PROGRAMS

Among other programs not officially a part of the American Medical Association program was the annual exhibit of art work by the American Physician's Art Association. Some 800 works of art, the handiwork of physicians of North America, Hawaii, and the Philippines were on display at the Plaza Art Galleries, on East 59th Street. There were landscapes, portraits, still lifes, water colors, pastels, sculpture, ceramics, photography, wood carving, jewelry, needle work, and other kinds of art. Winners in the various classes of art were announced at the banquet for this group at the Hotel Commodore Tuesday evening. The award for the best piece in the exhibit, the Helser Cup, went to Dr Jeannette Throckmorton of Des Moines, Iowa, for needle work. The President's Cup was presented to Dr M M Melicow of New York City for the best drawing and the award for the best oil painting went to Dr Richard Waldapfel of Grand Junction, Colo. Gold medals were awarded to an additional list of physician artists. The president of this group, Dr Melicow, presided at the banquet. The secretary is Dr Francis H Redewill Jr of San Francisco.

At a dinner on June 3 at the Waldorf Astoria, the Passano Award for 1953 was presented to John F Enders, Ph.D, in recognition of his development of relatively simple methods of culturing the viruses of poliomyelitis in tissue. Dr Emil Novak of Baltimore presided at this meeting. Basil O'Connor, New York, president of the National Foundation for Infantile Paralysis, gave an appraisal of the contributions of Dr Enders, and Robert S Gill, president of the Williams and Wilkins Publishing Company, presented the award to Dr Enders, whose speech of acceptance was entitled 'Some Recent Advances in the Study of Poliomyelitis.'

WOMAN'S AUXILIARY

The 30th annual meeting of the Woman's Auxiliary to the American Medical Association was held in the Grand Ball room of the Hotel Statler under the presidency of Mrs Ralph B Eusden of Long Beach, Calif. At the annual dinner of the auxiliary in the Waldorf-Astoria on Thursday evening, the guest speaker was Mrs Ivy B Priest, Treasurer of the United States, who urged women to intensify their interest in state legislatures and city councils in order to help preserve our American system and prevent the rise of an all powerful welfare state. During the meeting Mrs Eusden, the auxiliary president presented a \$10,000 check for the American Medical Education Foundation to its president, Dr Elmer L Henderson, of Louisville, Ky, making the total contribution of the auxiliary to date to the Foundation \$31,500. The new auxiliary president is Mrs Leo J Schaefer of Salina, Kan, and the next annual meeting will be in San Francisco during the annual meeting of the American Medical Association.

FEDERAL MEDICAL LEGISLATION

Detention of Narcotic Addicts

Senator Beall (R, Md) and Senator Barrett (R, Wyo) in S 994 propose to authorize the forcible detention of narcotic addicts committed by state courts to U S Public Health Service Hospitals until the addicts are cured. The bill would also require those who voluntarily submit themselves for treatment in a U S Public Health Service Hospital to take the complete treatment. States would pay the cost for persons committed by state courts. Under the present law, narcotic addicts convicted in federal courts of offenses against the United States may be forcibly detained in a U S Public Health Service Hospital until treatment is completed. However, persons who voluntarily submit themselves for treatment and persons committed by state courts cannot be detained against their will. This measure was referred to the Committee on Labor and Public Welfare.

Hospitalization for the Aged

Senator Murray (D, Mont), Senator Humphrey (D, Minn) and Senator Lehman (D, N Y) propose in S 1966 an amendment to the federal Old Age and Survivors Insurance System that would provide a system of free hospitalization with a 60-day annual limit for persons over 65 covered by Old Age and Survivors Insurance and for their dependents and survivors, to be paid for out of the OASI trust fund. Tuberculous, mental, and domiciliary care are not provided. The administrator of the social security system would prescribe regulations, and the states would merely act as agents functioning through the state health agency. The administrator of the social security system could operate the program within any state if the state failed to cooperate. Voluntary health insurance plans could be utilized as fiscal agents in providing this care through hospitals. States would be encouraged to provide, at their own expense, similar coverage for farmers and other noninsured aged persons. This bill is similar to H R 8 (Dingell) and H R 390 (Celler) previously reported, it was referred to the Finance Committee.

Medical Expense Deductions

The present income tax laws permit the deduction of medical expenses exceeding 5% of taxable income, with a limitation of \$1,250 for a single person and \$2,500 if the taxpayer has dependents. A limit of \$5,000 is set for a taxpayer and spouse with dependents filing a joint return. Congressman McDonough (R, Calif) in H R 5393 would permit "over the limit" expenses to be carried over from one year to another for three years. The bill was referred to the Ways and Means Committee. Congressman McDonough in H R 5399 also proposes to allow deduction from adjusted gross income subject to taxation of life insurance premiums under certain circumstances, but not to exceed \$200 annually. He proposes also up to \$200 deduction for hospital or any other medical care insurance. This measure was referred to the Ways and Means Committee.

Social Security Study

Congressman Reed (R, N Y) in H Res 243 would provide \$100,000 to finance a subcommittee of the House Ways and Means Committee to study the social security laws. This was referred to the Committee on House Administration and was reported favorably to the House on May 26 and was passed by the House on May 27.

Defense Department Reorganization

Congressman Hoffman (R, Mich) in H J Res 264 would make Reorganization Plan No 6 for the Department of Defense effective 10 days after the enactment of the resolution. The reorganization plan provides for six additional assistant secretaries. The resolution was referred to the Government Operations Committee.

Hill Burton Extension

Congressman Harris (D, Ark) in H R 5419 would extend the duration of the Hospital Survey and Construction Act (The Hill Burton Act) from 1955 until 1957. The bill further provides that "not more than 60 per centum of the sum allotted to a State for any year may be used for payment of the Federal share of the cost of any one or more projects in any service area if, under the State plan, there is one or more other projects in any other service area having equal or higher priority." The bill was referred to the Interstate Commerce Committee.

STATE MEDICAL LEGISLATION

Alabama

Bills Introduced.—H 311 proposes the creation of a state board of chiropractic examiners and defines chiropractic as the science and art of locating and removing without drugs or surgery any interference with the transmission and expression of nerve energy in the human body by any methods or means as taught in schools or colleges of chiropractic which are recognized by the state board of chiropractic examiners. H 395 proposes an act to provide for liens in favor of hospitals and other institutions upon causes of action for damages accruing to patients therein for the reasonable charges for hospital care necessitated by the injuries giving rise to such cause of action. S 155 proposes regulations for the awarding of 25 scholarships each year for the study of medicine in the University of Alabama Medical College. Each recipient of a scholarship under this proposal would enter into an agreement with the state board of health whereby he would practice medicine for five years after the completion of his medical training in an area or locality in the state designated by the state board of health or else forfeit and become liable immediately to the state for the amount granted him under his scholarship. S 181 proposes to provide for the licensing, regulation, supervision and inspection of private hospitals, institutions and homes for the mentally ill.

California

Bills Introduced.—A 3527 proposes regulations for the establishment of state narcotic clinics for the purposes of curbing the spread of addiction, curing addiction and obtaining information necessary to combat the narcotic menace. S 1970 proposes the creation of a state bureau of criminal identification and investigation.

Bills Enacted.—A 1739 has become ch 792 of the laws of 1953. It authorizes the governing board of a school district to contract with accredited schools and colleges of optometry, osteopathy, or medicine for the purpose of providing necessary testing of sight and hearing of pupils enrolled in the schools in the district. S J R. 32 has become res. ch 139 of the laws of 1953. It memorializes the Congress of the United States to enact legislation for the control of dangerous drugs similar to the California Dangerous Drug Act. S 1438 has become ch 773 of the laws of 1953. It provides among other things that no prescription for any dangerous drug may be refilled except upon authorization of the prescriber which may be given orally or at the time of giving the original prescription.

Connecticut

Bill Introduced.—H J R. 87 proposes to direct the legislative council to make a study of the care and treatment of habitual alcoholics afflicted with tuberculosis.

Bill Enacted.—H 1527 has become pub act No 277 of the acts of 1953. It amends the law relating to medical service corporations by authorizing the formation of nonprofit sharing corporations without capital stock for the purpose of creating a plan whereby medical service may be provided at the expense of the corporation by registered osteopathic physicians entitled to practice medicine or surgery under applicable provisions of the state law. S 301 has become public act No 254 of the acts of 1953. It eliminates existing provisions in the law prohibiting the marriage of epileptics. S 377 has become pub act No 121 of the acts of 1953. It amends the law relating to premarital blood tests by permitting the necessary examination to be made by a Canadian physician or by a commissioned medical officer in the armed forces or the Public Health Service of the United States.

Florida

Bills Introduced.—H 608 relating to the construction of a county hospital in Holmes County proposes that in the management of such hospital no discrimination shall be made against any medical doctors commonly known as M.D.s, duly licensed to practice materia medica in the state of Florida and all such regular medical doctors shall have equal privileges in treating patients in said hospital. The proposal also would require the board of trustees to organize a staff of medical doctors composed of every practicing medical doctor in the county and each such medical doctor shall hold his position on this staff so long as he complies with the rules and regulations laid down by the board. H 975 proposes to make it unlawful for any employer to require any applicant for employment to pay the cost of a medical examination or the cost of furnishing any records required by the employer as a condition of employment. H 1725 proposes the creation of a system of regional mental hospitals for the care

and treatment of mentally ill citizens of Florida H 1754 proposes the creation of liens in favor of operators of hospitals on causes of action held by patients in such hospital to the extent of services rendered to such patients. S. 597 proposes the enactment of a Florida pharmacy act. S. 916 proposes to authorize the county boards of counties of a certain size to provide for life, health, accident and hospitalization, or annuity insurance for employees of such boards and their families upon a group insurance plan S. 920 proposes regulations for the creation and operation of county hospitals in certain counties. S. 975, proposes to amend the hospital licensing law by making it applicable to all hospitals and not just those receiving federal aid or aid from the United States government.

Bills Enacted—H 138 became law without approval May 26 1953. It requires every person acting as an attending practitioner who is authorized to practice medicine, osteopathic medicine, chiropractic, naturopathy, or veterinary medicine to report immediately to the state board of health upon the diagnosis or suspicion of the existence of diseases which are communicable among humans or from animals to humans. The law also authorizes the state board of health by resolution to declare what diseases are communicable within the meaning of this act. H 340 was approved May 27, 1953. It amends the law relating to the medical examination of school children by providing that any child shall be exempt from medical or physical examination or medical or surgical treatment upon written request of the parent or guardian of such child who objects to the examination and/or treatment on religious grounds, provided that the laws, rules and regulations relating to contagious or communicable diseases and sanitary matters shall not be violated. H 854 became law without approval May 26 1953. It authorizes all counties of a certain size to expend county funds not exceeding \$5 000 annually for mental health and guidance purposes.

Hawaii

Bills Enacted—H. J. R. 26 was approved June 3 1953. It relates to the care and treatment of persons afflicted with Hansen's disease. S. 197 was approved May 28 1953. It authorizes the territory to make a charge for the use of radium applicators belonging to the territory and in control of the board of health.

Illinois

Bills Introduced—S. 525 proposes the enactment of a temporary disability benefits law. S. 530 proposes the enactment of a general hospital licensing law to cover private hospitals and sanitariums, maternity hospitals lying in homes, rest homes, nursing homes, boarding homes and other institutions providing hospitalization for in patients or nursing care for persons. S. 547 proposes the enactment of a uniform pharmacy act. S. 585 proposes to revise the law relating to the coroners by providing for the appointment in each county of a chief medical examiner to have charge of and be responsible for the investigation of certain deaths occurring in such county. Such medical examiners must be citizens of the United States, graduates of a medical school approved by the Department of Education and Registration, licensed to practice medicine in all branches in the state in which he resides and skilled in the science of pathology having had a minimum of two years formal graduate training in this specialty.

Oregon

Bills Enacted—H. 93 has become ch. 438 of the laws of 1953. It amends the law relating to the practice of massage by exempting therefrom physical therapy or massage carried on under the direction of any physician duly licensed to practice his profession in the state. H. 144 has become ch. 631 of the laws of 1953. It provides for the appropriation of funds for the establishment and maintenance of outpatient department to be operated as an instrumentality of the Oregon Fairview Home as a service to parents and guardians of mentally deficient children who are not admitted to a state institution. The outpatient department shall provide diagnostic services and advice to any parents or guardians of mentally deficient children who are not committed to a state institution and to parents or guardians of mentally deficient children who have been admitted to the Oregon Fairview Home but cannot be admitted until a vacancy occurs. H. 145 has become ch. 597 of the laws of 1953. It authorizes an appropriation of funds for the establishment and maintenance in connection with all existing and future state hospitals of outpatient clinics providing diagnostic treatment for persons suffering from mental illness or epilepsy who are not admitted to a state hospital and for persons released from a hospital without a certificate of discharge in those cases in which those persons will benefit from treatment or consultation on an outpatient basis. H. 268 has become ch. 555 of the laws of 1953. It amends the law relating to the practice of naturopathy by providing that the procuring, aiding or abetting in the procuring of an abortion shall constitute grounds for revocation of a license. The previous requirement was that it must be a criminal abortion. The act further defines an abortion as meaning the removal from the womb of a woman the product of conception at any time prior to delivery of the child. H. 270 was approved May 7 1953. It amends the law relating to the practice of chiropractic by authorizing revocation of a license to practice chiropractic by the board of chiropractic examiners upon proof that a licensee has been committed to a mental institution and upon proof that a licensee has procured or aided or abetted in procuring an abortion and upon proof of a number of other specific types of conduct by a licensee. H. 271 has become ch. 557 of the laws of 1953. It amends the law relating to naturopathy by increasing the educational requirements of applicants. It is provided that applicants must have two years satisfactory liberal arts and/or science study prior to matriculation into naturopathic college and the naturopathic school attended must be approved by the state board of

naturopathic examiners and must require for graduation a period of actual attendance of four years of at least nine months each. H. 365 was approved April 21, 1953. It amends the law relating to dangerous drugs by providing that prescriptions therefor shall be signed by a practitioner licensed by law to administer such drug. Formerly the law required such prescriptions to be signed by a physician or surgeon, dentist, or veterinarian. H. 782, has become ch. 611 of the laws of 1953. It provides an appropriation for the purpose of paying for medical, surgical, and other corrective services and facilities for children who are crippled or who are suffering from conditions which lead to crippling. S. 243 has become ch. 628 of the laws of 1953. It provides that in civil action in which paternity is a relevant fact, the court may order the mother, child and alleged father to submit to blood tests. If any party refuses to submit to such tests, the court may resolve the question of paternity against such party or enforce an order if the rights of others and the interest of justice so require. If the court finds that the conclusions of all the experts as disclosed by the evidence based upon the tests are that the alleged father is not the father of the child the question of paternity shall be resolved accordingly. If the experts disagree in their findings or conclusions the question shall be submitted upon all the evidence. If the experts conclude that the blood tests show the possibility of the alleged father's paternity admission of this evidence is within the discretion of the court, depending upon the infrequency of the blood type. S. 326 has become ch. 592 of the laws of 1953. It authorizes the board of medical examiners to institute injunction proceedings to enjoin a licensee from practicing the healing art following revocation of his license. S. 418 has become ch. 450 of the laws of 1953. It provides that a person who erects or maintains a building where any person shall administer to any woman any medicine, drug or substance whatever or shall use or employ any instrument or other means with intent thereby to destroy a child of such woman unless the same shall be necessary to preserve the life of such woman or unless such is done for the relief of a woman who appears in peril because of her pregnant condition after due consultation with a duly licensed medical or osteopathic physician or surgeon shall be guilty of maintaining a nuisance. S. 427 has become ch. 541 of the laws of 1953. It amends the law relating to chiropractic by defining chiropractic as including the performance of minor surgery and excluding the administering of prescriptions for drugs. For the purposes of this act, "minor surgery" is defined as the use of electrical or other methods for the surgical repair and care incident thereto of superficial lacerations and abrasions, benign superficial lesions and the removal of foreign bodies located in the superficial structures and the use of antiseptics and local anesthetics in connection therewith. The term "drug" is defined to mean all medicines and preparations and all substances except food and water used or intended to be used in the diagnosis, cure, treatment, mitigation, or prevention of disease or abnormalities of man which are recognized in the latest editions of the official United States Pharmacopoeia, official Homeopathic Pharmacopoeia, official National Formulary, or any supplement to any of them or otherwise established as drugs provided that nothing in this Act shall be deemed to prevent one licensed under the Act from the administration of the anesthetics or antiseptics authorized in the definition of minor surgery or the use of radiopaque substances administered by mouth or rectum necessary for roentgen diagnostic purposes provided further, that nothing in this definition shall be interpreted as authorizing the administration of any substance by the penetration of the skin or mucous membrane of the human body for a therapeutic purpose.

HOW FAR FROM A PHYSICIAN?

According to Bulletin 94A recently published by the Bureau of Medical Economic Research of the American Medical Association, approximately 509,000 square miles, or one-sixth of the entire United States, was more than a radius of 25 miles from a physician in active private practice in April, 1950. (A copy of Bulletin 94A may be obtained now, and requests may be filed for Bulletin 94, the book to be published later this year, by writing to the Bureau of Medical Economic Research, American Medical Association, 535 N. Dearborn Street, Chicago 10.) Most of this territory outside the 25 mile limit, which is shown on Map F of the bulletin, is located in the Rocky Mountain and Great Plains regions, approximately 237,000 persons, or 1/5 of 1% of the entire population of the United States, resided in these wide open spaces, where the nearest neighbor is often many miles away. The relatively small number of persons in these sections without physicians refutes most of the arguments about the unavailability of physicians services in many parts of the United States. This fact is one of many established by the joint study of medical service areas by the Bureau of Medical Economic Research and the state medical associations. This study was begun several years ago, and the book for which Bulletin 94A is a 39 map supplement will be published some time this summer. On these 61 pages of maps are 15,192 marks, one for each place in which one or more physicians are located. Even a cursory examination of these maps indicates that physicians are located almost everywhere, except in the sparsely settled sections of the West.

PROCEEDINGS OF THE NEW YORK MEETING

ABSTRACT OF PROCEEDINGS OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION AT THE ANNUAL MEETING IN NEW YORK CITY, JUNE 1-5, 1953

The actions of the House of Delegates at the New York Meeting are herewith abstracted so that the readers may have this information in digest form. The official proceedings will be made available, as in the past in a booklet, which will be sent to all members of the House of Delegates and officers of the American Medical Association by the Secretary. This booklet will not be available for several weeks.—Ed

Report of Reference Committee on Credentials

Dr William Weston Jr, Chairman, reported that 163 delegates had registered, and the Speaker announced that a quorum was present

Invocation

The Right Reverend Horace W B Donegan, Protestant Episcopal Bishop of New York, pronounced the following invocation

Almighty God, our heavenly Father, whose loving kindness is manifest in all Thy works, we give Thee thanks for all Thy gifts by which our lives are sustained and strengthened for the tasks and responsibilities that are committed to us. We ask Thy blessing upon the American Medical Association under whose auspices we are now assembled. Prosper all its undertakings, and guide and direct them in the deliberations in which they engage. We thank Thee for the work of physicians and surgeons, for the development of medical skill and knowledge, for the closer cooperation between religion and medical science. Grant to Thy servants who are called to study and practice the arts of healing the sick and the prevention of disease and pain, strength in body and soul, and bless their work that they may live as servants of Him who lived and died to save us all. We ask this in Thy name. Amen

Tellers, Sergeants at Arms, Reference Committees

Dr James R Reuling, Speaker, announced the appointment of Tellers, Sergeants at Arms, and Reference Committees, as follows

TELLERS

William R Brooksher, *Chairman* Arkansas
Vincent W Archer, Virginia
Edward P Flood, New York
E S Jones, Indiana
Carl A Lincke, Ohio

SERGEANTS AT ARMS

Laurence L Fitchett, *Master Sergeant*, Delaware
Frank J Holroyd, West Virginia
Russel V Lee, Section on Military Medicine

AMENDMENTS TO THE CONSTITUTION AND BYLAWS

John W Green, *Chairman*, California
William F Costello, New Jersey
Thomas M D Angelo, New York
Jesse D Hamer, Arizona
J Paul Jones, Alabama

BOARD OF TRUSTEES AND SECRETARY, REPORTS OF

H Russell Brown, *Chairman*, South Dakota
Clark Bailey, Kentucky
John F Burton, Oklahoma
Bernard Klein, Illinois
Raymond M McKeown, Oregon

CREDENTIALS

William Weston Jr, *Chairman*, South Carolina
Paul Baldwin, Missouri
Charles M Hamilton, Tennessee
Howard K Petry, Pennsylvania
Hoyt B Woolley, Idaho

EXECUTIVE SESSION

Grover C Penberthy, *Chairman*, Section on Surgery, General and Abdominal
George W Kosmak, New York
Fred H Muller, Illinois
John W Parsons, Maryland
Martyn A Vickers, Maine

HYGIENE AND PUBLIC HEALTH

Everett P Coleman, *Chairman*, Illinois
Earle M Chapman, Massachusetts
Willis H Huron, Michigan
Charles L Shafer, Pennsylvania
John K Glen, Texas

INDUSTRIAL HEALTH

A H Aaron, *Chairman*, New York
Lewis A Alesen, California
Charles L Farrell, Rhode Island
Charles G Hayden, Massachusetts
Millard D Hill, North Carolina

INSURANCE AND MEDICAL SERVICE

Gerald V Caughlan, *Chairman*, Iowa
George A Earl, Minnesota
Percy E Hopkins, Illinois
Louis M Orr II, Florida
Raymond L Zech, Washington

LEGISLATION AND PUBLIC RELATIONS

George S Klump, *Chairman*, Pennsylvania
Ralph A Johnson, Michigan
Thomas J Danaher, Connecticut
S J McClendon, California
Arthur C Scott Jr, Texas

MEDICAL EDUCATION AND HOSPITALS

Herbert B Wright, *Chairman*, Ohio
Gilson Colby Engel, Pennsylvania
Val H Fuchs, Louisiana
Raymond F Peterson, Montana
Hans H Reese, Section on Nervous and Mental Diseases

MEDICAL MILITARY AFFAIRS

Elmer P Weigel, *Chairman*, New Jersey
Hugh H Hussey, District of Columbia
Laurence S Nelson Sr, Kansas
W Andrew Bunten, Wyoming
Wendell C Stover, Indiana

MISCELLANEOUS BUSINESS

Walter P Anderton, *Chairman*, New York
Frank H Krusen, Section on Physical Medicine and Rehabilitation
Charles H Phifer, Illinois
George A Unfug, Colorado
Robertson Ward, California

REPORTS OF OFFICERS

Wyman D Barrett, *Chairman*, Michigan
Paul A Davis, Section on General Practice
Robert B Homan Jr, Texas
George A Woodhouse, Ohio
Charles H Richardson, Georgia

RULES AND ORDER OF BUSINESS

Hollis E Johnson, *Chairman*, Section on Diseases of the Chest

John P Culpepper, Mississippi

Peter J DiNatale, New York

George M Fister, Utah

Eugene F Hoffman, California

SECTIONS AND SECTION WORK

James P Hammond, *Chairman*, Vermont

Carl H Gellenthien, New Mexico

Karl S J Hohlen, Nebraska

Roland W Stahr, Nevada

Willard A Wright, North Dakota

Distinguished Service Award to Dr Alfred Blalock

Dr Dwight H Murray, Chairman, Board of Trustees, presented the names of three physicians selected by the Board from the list of nominations for the Distinguished Service Award, for the election of one by the House of Delegates to be the recipient of the award. The nominees were Dr Alfred Blalock, Baltimore, Dr Joseph H Pratt, Boston, and Dr Torald Sollmann, Cleveland. Dr Alfred Blalock was elected recipient of the Distinguished Service Award of the American Medical Association for 1953.

Adoption of Proceedings of Denver Clinical Meeting and of Washington Special Meeting

Dr E Vincent Askey, Vice Speaker, called for motions to adopt the minutes of the Denver Clinical Meeting, Dec 2, 5, 1952, and of the Washington Special Meeting, March 14, 1953, as printed and distributed to the members of the House of Delegates. The minutes of the Denver and Washington Meetings were adopted as published.

Remarks of the Speaker, Dr James R Reuling

The Speaker presented the following remarks which were referred to the Reference Committee on Reports of Officers.

Members of the House of Delegates of the American Medical Association

It is always a pleasure for me to appear before you, and it is with especially great pleasure that I welcome you here in New York. The county of Queens from which I come is one of the boroughs which comprise this great city. I say borough because that is what we call them here in New York City. In some parts of the country they call them counties, and in some places they call them parishes. The term borough comes from the Dutch. The borough of Manhattan where we are meeting now is sometimes erroneously thought of as being New York City. It is, however, only one of the five boroughs that make up New York City. The borough of Kings, to many better known as Brooklyn and to some best known as the home of "Dem Bums," the Brooklyn Dodgers, is located across the East River on Long Island. I said that I come from the borough of Queens. This is the largest of the five political subdivisions which make up New York City, largest in size in geographical area, and the second largest in population being exceeded only by Brooklyn. Next is the borough of the Bronx, sometimes pronounced Bronx, home of the Bronx Bombers, who play at Yankee Stadium. This is the place where the Bronx cocktail originated, and also the Bronx cheer. However, it has the distinction of being the only borough of New York City that is on the North American continent, the other four all being on islands. And lastly, there is the borough of Richmond, sometimes spoken of as Staten Island. I suggest that a ferry ride out there is well worth while, and I predict that some day it will be the most lovely of all the five boroughs, for it lies well out in the Atlantic. Forgive me for taking up your time in giving you some of the geographical background of this, the largest city in the world. We have much serious business before us.

At this time, when a voice vote is taken and the Chair is in doubt or when a division is called for, the Tellers will not be asked to make an actual count of a show of hands unless the vote is close. There was one show of hands at our last

meeting when a quick glance would have convinced anyone of the result, and in such a case the time of the House should not be consumed in making an actual count unless it is specifically requested.

The Speaker welcomes, and has received, many suggestions for the better functioning of the House of Delegates. One particular suggestion affecting every member would be such a radical change that it should be done only if the House approves. It is recommended that the reference committee study the following quoted suggestion and report to the House.

May I present to you an idea for consideration? I have had a few years' experience in the House of Delegates. It is my impression that we need more mixing up of the delegates. Might I suggest that a place card in alphabetical order be placed in front of each man's seat? Such a simple thing will mix up the delegates. It seems to me that it would be a great advantage to American Medicine if Alexen from California sat next to Allen of Georgia and next to him Abbott from New York and next to him Abrahams from Pennsylvania etc. I have found it a refreshing experience and one that increases my knowledge and tolerance to sit next to people from other parts of the country whom I know not too well. On many matters before the House the views of the delegates from Illinois, for example, might certainly be changed if each of the Illinois delegates sat next to a delegate from some other state in these United States. Our rather 'small' local view of and interest in a problem might be shown to be at fault by conversations with our brother physicians from other parts of this great United States.

Many of you are expert parliamentarians, and what I am going to say should not be interpreted as an attempt to give anyone instructions. Experience would indicate, nevertheless, that the attention of the House should be called to two motions that are frequently not clearly understood, and which are often made in error. The first of these is the motion to "lay on the table." This motion is frequently made when the obvious intent of the maker is to 'move to postpone indefinitely.' The motion to 'lay on the table' is always in order. It is a subsidiary motion of the highest rank. It is undebatable and unamendable. It should always be remembered, however, that what has been put on the table can be taken from the table with certain limitations. On the other hand, a motion to 'postpone indefinitely' may by its name be misleading. It is purely a technical term for killing the motion before the House. It is debatable. It is not subject to amendment, but it can be reconsidered.

The other motion to which your attention is called is 'the previous question.' The name of this motion is very misleading. We frequently hear members calling 'question, question.' It is only a sign of impatience, and is in a way disrespectful to the House itself or to the last person who spoke, or to the presiding officer. On the other hand, if a member rises, is recognized, and makes a motion saying "I move the previous question," such a motion must be seconded as any other motion. When such a motion is seconded, it is technically the same as a motion proposing to terminate debate or to put a stop to further discussion or to prevent further amendment on the question before the House. A vote on the "previous question" cannot be debated, nor can it be amended. It ranks, as the second highest subsidiary motion that can be made. As I said, it is not debatable and it cannot be amended. However, it can be reconsidered. But, most important, it requires a two-thirds vote for adoption. The reason it requires a two-thirds vote is that if adopted, it deprives the members of the right of further discussion. Particular attention is called to the fact that the adoption by a two-thirds vote of the 'previous question' does not constitute a vote on the main motion before the House or on any amendment to the main motion which has been made. It is only a motion to terminate debate. After it is adopted, the House must then vote on any amendment or substitute motion, and then on the main motion, as in usual procedures.

Several innovations have been made which should make your work easier. Whether Dr Lull, Dr Howard, or your Speaker, or the combination of the three is responsible, is immaterial. There was even an editorial in *Northwest Medicine* regarding one of these innovations. In a folder which will be provided to you, you will find reports and resolutions that have been submitted in advance. Also, you will find two lists of references of the material in your handbook. One of these sheets contains references by consecutive pages in the hand-

book. The other list is made up of subjects or pages referred to individual reference committees. In other words, the two lists will constitute a cross index for your convenience.

As we have done in the past, it is again requested that you omit all "whereases" in the presentation of resolutions, for it does conserve much time. Before the meeting of the House at which reports of the reference committees are made, you will find at your place complete mimeographed copies of resolutions, including the "whereases," which have been presented and on which the reference committees will report. If there are many resolutions presented dealing with a single subject, all will not be multigraphed, but only one or two specimens will be given you. It is believed that in this way you will have before you complete information on all questions on which you are asked to make your decisions and cast your votes. It is believed that this innovation will expedite the work of the House in that there will be less frequent requests for a re-reading of material previously submitted. It may be that a few delegates may not have done their home work" or may have left their folders some place. If there are requests for re-reading of resolutions of material previously submitted, it will not be done unless the House so orders.

At the risk of repetition, attention is directed to a recommendation made by the Speaker at the Denver meeting. From my remarks to you regarding the preparation of reference committee reports, I shall quote, "There may be times or circumstances when a reference committee cannot reach a unanimous opinion. Under such circumstances, it is perfectly proper that two members, or even one member of a reference committee, bring in a minority report. If there is a minority report it should be as carefully prepared as the majority report."

Believing that the majority of delegates are interested in starting their meetings on time and at the appointed time, the Sergeants at Arms are requested to station themselves in the corridor and in the rear of the meeting room at least five minutes before a session starts in order to urge and alert delegates to be seated promptly and without too much confusion. At the annual meeting when elections take place and in order to expedite the counting of the ballot, it is recommended that the House approve the appointment of eight Clerks from the House to work under the Chief Teller and assist the Tellers in making the actual count of the ballots.

Your particular attention is called to a booklet entitled "Your Role as a Delegate to the American Medical Association," which was sent to you with your handbook. If you have not already read this, I would ask that you give it careful consideration, as it contains much useful information regarding the House of Delegates and procedures that have been adopted.

Attendance slips are handed out by the page boys stationed at the door as you enter the meeting room. It is necessary that you sign these attendance slips if you expect your name to appear in the official published proceedings. This is the only method by which the headquarters office can check on the members present at a session, and you are therefore urged not to put the slip in your pocket, but to sign it and return it to the page boy.

In past years at the time of the Annual Meeting it has been customary to read the names of former officers and members of the House of Delegates who have been called to their reward by the Great Healer. There may be many instances when present members of the House have been unaware of our loss and would wish to write some word of condolence to the family. Lists of the former members now deceased have been mimeographed for distribution among you, and instead of reading the list at this time, I would suggest that you give it careful and reverent consideration individually. At this time we shall rise in silent tribute to these departed confreres.

Members of House of Delegates and/or Officers of the American Medical Association Notice of Whose Death Has Been Received Since the 1952 Annual Meeting

(The dates following the names indicate years of service in the House or as Officers of the Association.)

Adams, Bon O, California, 1940
 Alley, John Newton, Idaho, 1913
 Aranow, Harry, New York, 1946-1948
 Armstrong, Guy L, Illinois, 1914-1915
 Baysinger, Stuart L, Missouri, 1920-1921, 1928-1932
 Burton, Paul H, North Dakota, 1934
 Codman, Charles A E, Pennsylvania, 1940
 Cooper, O O, West Virginia, 1908
 Coventry, William A, Minnesota, 1914, 1916, 1937-1950
 Craig, Robert R, Nevada, 1916
 Cullen, Thomas S, Maryland, 1903 1913-1914, 1916, 1918-1920, 1922, 1924-1925, 1942, 1945-1947 Member Board of Trustees, 1929-1941
 Deaf, Don W, Illinois, 1917-1918
 Ireland, Merritte W, U S Army, 1908-1910
 Lytle, Franklin Pierce, Pennsylvania, 1925, 1928, 1930-1931, 1933-1940
 Miller, Richard H, Massachusetts, 1935 1938, 1941-1944
 Moody, Earle F, Alabama, 1916 1917
 Moore, Robert M, Indiana, 1931
 Mowry, Jesse E, Rhode Island 1916-1917
 Plummer, Samuel C, Illinois, 1904
 Reeder, Frank E, Michigan, 1939-1947
 Seeger, Stanley J, Milwaukee, Wis, Vice President, 1944-1945
 Shanks, Edgar D, Georgia, 1946
 Skinner, Edward H, Missouri, 1928, 1935, 1937-1944
 Tolleson, William A, Oklahoma, 1914
 West, Olin, Nashville, Tenn, Field Secretary, 1922, Secretary, 1922-1946, President-Elect, 1946-1947, General Manager, 1924-1946
 Wilkinson, Charles E, Illinois, 1935, 1937-1945
 Yeager, George C, Philadelphia, Vice President, 1931-1932

Report of Reference Committee on Reports of Officers

Dr George A Woodhouse, Ohio, presented for Dr Wyman D Barrett, Chairman, the following report, which was adopted.

Your committee wishes to commend the Speaker for his historical and geographical review of the largest city in the world, namely New York City. His interpretation of the procedure of the House of Delegates, with the various resolutions and questions that arise, was well described and very informative, and we hope that each member of the House of Delegates will acquaint himself with these parliamentary procedures and methods of voting on matters under discussion.

It had been suggested to the Speaker that mixing of the delegates from the various states would be advantageous to each member in becoming acquainted with men from other states and sections. Your committee is of the opinion that such a procedure in seating delegates should not be a hard and fast rule, but that an attempt should be made to give it a trial at succeeding sessions, and that the Speaker could give consideration to making arrangements for carrying out this suggestion.

In order to provide the delegates with complete copies of all resolutions and reports to be available at the first session of the House of Delegates as suggested by the Speaker, it is recommended that whenever possible all resolutions should be sent to the headquarters in Chicago in advance of the session so that an adequate number of mimeographed copies will be available at the first session of the House of Delegates.

The Council on Constitution and Bylaws presented a suggested revision in order to provide the procedure of a minority report being presented from a reference committee, should this be necessary.

The booklet entitled, "Your Role as a Delegate to the American Medical Association," which was mailed to all delegates prior to this meeting, contains excellent factual information for the guidance of the House of Delegates. Your committee suggests that this booklet should be mailed to each delegate at succeeding sessions of the House. The recommendation of the Speaker that the House approve the appointment of eight Clerks from the House to work under the Chief Teller is an excellent suggestion and should be carried out.

The publication of lists of deceased former officers and members of the House of Delegates, as printed this year, should be continued

Address of the President, Dr Louis H Bauer

Dr Louis H Bauer, President, presented the following address, which was referred to the Reference Committee on Reports of Officers

Mr Speaker and Members of the House of Delegates

Except for a few brief remarks tomorrow night, this is my final formal talk to you as President Two years ago when you elected me to this high office, I said I hoped that when my term was up, you would have no regrets for your action

It falls to the lot of but few persons to be president of the greatest medical association in the world It is not an easy task, and I believe it becomes a more difficult one each year It is not the travel, the speeches, the meetings, nor even the correspondence, and they are all somewhat backbreaking, that make the position difficult It is the fact that in the eyes of the public, and even in the eyes of the majority of the profession, the President represents the Association Every word he utters is analyzed and often twisted as to its meaning Every speech he makes, every quotation from his remarks, results in a deluge of letters, some praising him for his stand, others condemning him He soon learns that he cannot please everyone He has to hear the Association attacked and blamed for things for which it is in no way responsible His own motives may be questioned He becomes shocked at the appalling ignorance that many doctors have about their own association

During the past two years I have personally answered nearly 2,000 letters They were of all types Some were congratulatory, some were interrogative, some were critical of the actions of certain doctors, some were critical of the American Medical Association, particularly with reference to the 'Doctor-Draft Law,' and some were critical of public statements I have made, usually because of quotations out of context but sometimes because of honest differences of opinion There even have been a few from inmates of mental hospitals asking me to get them out.

All this is part of the job, and one should not accept the position unless he is willing to shoulder the tremendous task and struggle to do the best he can as he honestly sees it for the best interests of American medicine and the American public He, being human, will make mistakes, but if he is to be of any use to the Association, he cannot idly sit back and do nothing because he fears criticism This is a free country, and everyone is entitled to his opinion, and I believe doctors as a class are more individualistic in their thinking than any other group of persons

I respect the man who holds a different opinion from mine and who fights honestly and fairly for that opinion Constructive criticism and honest differences of opinion are always welcome They make for progress I must admit, however, that it was rather discouraging, after twenty years of fighting for organized medicine and against socialism, to receive two letters and a copy of a statement of undetermined distribution, accusing me of duplicity, untruth, perfidy, and being a party to a craven episode The whole Board of Trustees and certain personages high in government were also viciously attacked, but most of the vitriol was thrown at me I mention the incident only to indicate that the path of the President is not strewn with roses

This all pertains, of course, to the recent actions of the Board of Trustees and the House of Delegates supporting the elevation of the Federal Security Agency to the level of an Executive Department A great deal of misunderstanding is current, and it is due to a great deal of misinformation being bandied about

I have been accused of being scarcely truthful in saying the information could not have been sent out earlier The facts are as follows It was February 18 when it became definitely apparent that a reorganization plan would be introduced, and only the barest outlines were known It was decided, however, that the House ought to pass on it As it takes twenty days to call a meeting of the House, a call was sent out at

once On February 25, plans were more definite and the general scheme was known, but the bill had not been drafted, however, everything that was known was incorporated in a letter sent to every delegate The actual texts of the bill, of the President's message, and of the directive describing the duties of the special assistant for medical affairs were not received until about thirty six hours before the House convened

The Board could have done any of four things It could have done nothing, or it could have approved the proposition, either of which would have been contrary to the House's previously expressed desires It could have opposed the bill, but, as there were certain differences in the proposed bill from previous bills, the Board took the fourth alternative, that of submitting the matter to the House, as the only fair thing to do

It has been alleged that the plan was no different from the ones submitted previously That is not true In no previous bill was there provision for a special assistant through whom medical affairs would be screened It is stated that this position is advisory That was known, and it was so stated, but what positions in the government outside of cabinet posts are not advisory? Even cabinet officers are advisory to the President

There have been statements that by our action we have approved extension and expansion of Social Security We have done no such thing Social Security has not been changed, and there is every probability that no change will be made until after a thorough investigation and reevaluation of it This certainly should be done

It has been stated that we would have been better off with an assistant secretary rather than with a special assistant to the secretary I do not agree An assistant secretary would have had something to say about health matters only within his own division The special assistant can render opinions on any health matter arising within the department, in health agencies, education, or Social Security Furthermore, we have reserved the right to recommend changes in the law as indicated even to the point of asking for an independent department of health, if it seems advisable

The House has on several occasions asked for the latter, even as recently as December, 1952 We have been accused of opening the door to government control of medicine by approving the present plan In my opinion the present plan is far less dangerous An independent department of health could well prove to be the dragon that would devour us There is far less danger in the present setup

No doctor could fail to be both humbled and somewhat awed by the honor of being President of the American Medical Association I venture to say, however, that no President has ever been sorry that his term was over, except to regret that he could not have accomplished more

In my acceptance speech two years ago, in my inaugural speech a year ago, and in my presidential pages in THE JOURNAL, I have outlined some of the things that I think we should do How far have we progressed during the past year?

Voluntary insurance has continued to make great strides One of the gaps in its coverage that I mentioned is protection of those over age 65 This is rapidly being accomplished, and before long I believe it will be accomplished The other gap, namely protection against long-duration illness has proceeded more slowly and is not yet sufficiently available It must be made so

Programs for the medical care of the indigent are steadily progressing and must be made available in all areas Programs for the care of those suffering from chronic and degenerative disease have not progressed very far during the past year and probably will not until the Commission on Chronic Illness makes its report This problem must be placed high on our agenda Public health coverage is steadily improving, but some areas still lack satisfactory programs Little further progress can be expected in this area until Congress has investigated and decided on the whole grant in aid problem Public health is primarily a community responsibility The emergency call system is steadily increasing, but in some

areas there has developed an apathy among doctors with regard to it. Doctors must be stimulated to accept their responsibility of making medical care available at all hours of day or night.

Much has been said in various quarters about excessive fees, fee splitting, and ghost surgery. While I would not be little these evils, it is unfortunate that the impression has reached the public that these things are common among the profession. They do exist, and they must be stamped out, but the vast majority of the members of the medical profession are honest and above reproach in their financial relations with the public. The whole profession should not be tarred with the same stick that should be applied to a few. These evils can be eliminated by grievance or mediation committees made up of members with steel in their backbones, and the county societies must support the actions of their committees. These committees must never become "whitewash" agencies. Whenever possible the members of these committees should be drawn from areas other than those in which the defendant lives.

This brings me to the subject of ethics. Too little attention has been paid to teaching the ethics and traditions of medicine to the younger generation of doctors. I am glad to say that societies in many areas are waking up to this and are establishing courses of instruction for prospective members. This should become a universal practice. Medicine will probably continue to be one of the learned professions. In the past, however, the family doctor has been closer to the individual and the home than anyone else with the possible exception of the clergyman. This relationship and high status of the profession will be lost unless we inculcate the ideals and ethics of medicine on the new members of the profession. The new doctor must realize that medicine is primarily a public service and that there are certain things an ethical physician just does not do.

Last December I urged the appointment of a committee to meet with representatives of the Advisory Board of Medical Specialties to see what could be done to increase the flow of general practitioners and decrease the flow of specialists. I hope, earnestly, that something will come out of these conferences. I believe the freedom of medicine as we know it will depend largely on the results they obtain. The American Medical Education Foundation is receiving steadily an increasing amount of funds. The President of the United States has stated that he is against federal support of education, and I believe that statement comes from his heart. Nevertheless, funds must be obtained for the support of medical education. Should the federal government enter this field there would be a danger of government control of education, and, in addition, private funds now received would dry up. Then, should the government withdraw or reduce its financial support, our schools would be worse off than ever. Every doctor owes something to his medical school. The tuition he paid represented not more than one third of the cost of his school in educating him. The balance came out of endowments. Endowments are not increasing, and interest on them has shrunk. Now is the opportunity for the doctor to repay his debt to his school. The American Medical Association for three years has contributed a half million dollars each year to prime this project. It cannot continue this indefinitely. The doctors themselves must step into the breach.

In my over 100,000 miles of travel this past year and in the 50,000 miles traveled last year I have been shocked to find how many members of the American Medical Association know little or nothing about their own organization. During the last few months I have spent most of the time in my various talks telling what the American Medical Association is and what it does for the public and for its members. Never yet has it failed to happen that a number of men would come up to me afterward and say they had had no idea about the things I had told them. It was also rather shocking to find that doctors in other countries know more about the American Medical Association than many American doctors. In several countries I have visited, the doctors told me they would like to pattern their associations after the American Medical Association.

I think perhaps the Association made the greatest mistake in its existence when it did not impose dues from the very beginning. One never appreciates what he gets for nothing. After a while he takes it for granted and forgets who pro-

vided it for him. The whole environment of medical practice in this country today is due to the Association. The fact that our medical schools are unexcelled in the world today, the fact that the doctor can turn to our various councils, Pharmacy and Chemistry, Foods and Nutrition, and Physical Medicine and Rehabilitation, for reliable information about drugs, other therapeutic agents, diagnostic and therapeutic apparatus and methods, is a privilege not enjoyed by doctors in any other country. Our Council on Industrial Health and the Council on Rural Health have done much to raise health standards in those fields. Our Bureau of Investigation has shown up a half a million quacks, charlatans, and fraudulent remedies. Our medical publications, scientific exhibits, and meetings are a postgraduate course of instruction in themselves. Some of our journals are published at a loss as a service to the profession. The Committee on Research has contributed largely to our knowledge. Research students could not function without our Quarterly Cumulative Index Medicus, which is also published at a great loss. The Bureau of Health Education is serving the public as is no other health information service. The Council on Medical Service, with the Bureau of Medical Economic Research, are constantly pouring out information on the social and economic aspects of medicine. Where would our members get the information they have available on legislation, federal and state and on court decisions affecting medicine, were it not for our Washington Office and the Bureau of Legal Medicine and Legislation? So I could go on, and most doctors do not know these things, or, if they do, they take them for granted. In the last six years I have visited twenty two foreign countries, some of them several times. I can assure you that no medical association in the world has done so much for the people of their countries or for their doctors as has the American Medical Association. It is high time that these facts were universally known. Our Public Relations Department, under Leo Brown, has done much in the last two years to publicize these facts, but he and his department need the help of every one of you to spread this knowledge. Our members need not only to be educated, but to be stimulated to take part in the activities of their local and state organizations. The time has long since passed when a doctor can concern himself only with scientific medicine. He must be alert to the social and economic phases as well.

The lack of knowledge that doctors exhibit was never more forcibly brought to my attention than with the enactment and operation of the Doctor Draft law. Every injustice resulting from that has been blamed on the American Medical Association. Every doctor who has been dissatisfied with his service, everyone who has experienced any injustice in his being called up or in his service—and there have been many—blame it all on the Association. They have absolutely no idea what has been done by our Council on National Emergency Medical Service to better their lot, no idea of the recommendations the American Medical Association made that were disregarded. It reminds me of a story about Dr. John Collins Warren of Boston. In the early 1890's he operated on a woman for a vesicovaginal fistula. Up to that time the operation had never been successful. This operation was, and he was very much pleased. He visited the patient one morning and said, "Well, Mrs. X, how do you feel this morning?" "Oh doctor," she replied, "Thank God I am like other women now." "That's right," said Dr. Warren, "If anything goes right, thank God for it, and if it goes wrong, blame the doctor!" So it is in medicine, if anything goes right, I do not know whether the doctors thank God for it or just take it for granted, but I do know that if anything goes wrong they blame the American Medical Association.

During the past year a new administration came into power. We felt that the danger of socialization was over. Some have become impatient and expected overnight miracles. I should like to remind them that "the mills of God grind slowly, yet they grind exceedingly small." A snowball rolling downhill increases in size and momentum. The socialistic snowball has not been rolled back uphill, but the momentum has been stopped and cuts have been made in its size. The President of the United States told this House of Delegates last March that he disliked two words, "compulsory" and "socialized." I am certain that while he is in the White House

we need have no fear of medicine being dominated by a socialist minded bureaucrat. We must, however, work constantly to eradicate the gaps in our medical care system, which I have enumerated so that there will never again be any concerted effort to destroy freedom in medicine.

I bespeak for Dr McCormick, my successor, your wholehearted support and cooperation. To him I extend my congratulations and best wishes.

In closing I wish to thank you for the honor you have conferred upon me and to express my appreciation for the support you have given me. Two years ago I promised to give you the best there was in me. I have striven to do that, but, compared to what remains to be done, it has seemed pitifully little. I shall retire from this office with one regret—that I have not been able to do more.

The aim of medicine and the American Medical Association is one and the same—to bring increasingly improved medical care within the reach of every citizen. I assure you that as long as I am physically able I shall, as a private in the rear rank, continue to work for the attainment of that aim. Thank you!

Report of Reference Committee on Reports of Officers

Dr George A. Woodhouse, Ohio, presented for Dr Wyman D. Barrett, Chairman, the following report, which was adopted:

Dr Louis H. Bauer, in his last address to the House of Delegates as President, virtually gave an account of the work he had done during the past year. The amount of work accomplished and the distances traveled seem almost a physical impossibility for one individual. In this address Dr Bauer commented on various pertinent activities which the Committee wishes to point out to the House of Delegates.

The special meeting of the House of Delegates held in Washington in March of this year, at which time approval was given to the establishment of a Department of Health, Education, and Welfare, was discussed by Dr Bauer. He explained the necessity for calling the House in special session to take action on this proposal in order to obtain the concerted opinion of the representatives of the medical profession of the United States regarding the proposed Reorganization Plan. Your committee regrets that Dr Bauer has been attacked by many in the profession because they were unaware of the facts. These, we think, have been clearly explained in his address.

Dr Bauer referred to the continued expansion of voluntary insurance plans during the past year. In addition he pointed out the necessity for providing programs for the medical care of the indigent and those suffering from chronic and degenerative diseases. Your committee agrees that immediate further intensive study of these problems should be made by the various commissions, committees, and councils that have this matter under consideration. Without a doubt, definite plans and procedures for the alleviation of some of these problems will be promulgated by the Commission on Chronic Illness when its report is completed.

It is unfortunate that the whole profession has been criticized for the acts of the very few unethical and irresponsible individuals. Your committee agrees with Dr Bauer that the questions he has mentioned with regard to these unethical procedures are occurrences that should be stamped out completely. It is also unfortunate that an occasional member of this honored profession will, in the public press, make statements that are interpreted by the public as involving the whole profession when these conditions are minimal. More attention should be paid to the teaching of the ethics and traditions of medicine in the medical schools of our country. This program should also be one for major discussion in the local county medical societies, not only for the education of the new doctor but also for the older physicians.

Your committee is pleased that the President of the United States has stated he is against the federal support of education and that he dislikes two words "compulsory" and "socialized." One of the answers to this problem is continued support of the American Medical Education Foundation.

The problem of too many specialists and not enough general practitioners is one that is nationwide and while this can

be directed by an advisory board at the top level, many of these problems should be solved at the local and state level.

Your committee was impressed by the President having traveled some 150,000 miles during the past two years, and talking to various groups and organizations concerning the activities of the American Medical Association. This widespread travel has carried him not only through the United States but to several foreign countries.

Dr Bauer delineated the various headquarter activities of the association in its councils and bureaus and pointed out that their function was frequently more valuable to the general public health than to individual members of the Association. The services of the American Medical Association to the American public have been given by a purely voluntary organization without federal tax support. The public relations activities of the Association have been conducted on a high level, and its activities have been widespread in educating not only the general public but the medical profession concerning our organizational functions.

There has been much widespread discussion, due primarily to misinformation, concerning the enactment and operation of the Doctor Draft law. Dr Bauer commented on this fact and stated that many of the recommendations of the Council on Medical Service had not been accepted by the Department of Defense.

Finally, your committee wishes to commend Dr Bauer for his year's period of service and his diplomatic conduct of the office of President, and for his untiring efforts in behalf of the public and the medical profession.

Presentation of Distinguished Guests

The Speaker announced that Dr Leo Schiff, Chairman of the Committee on Foreign Guests, and Dr George W. Kosmak, Chairman of the Local Committee on Arrangements Subcommittee on Distinguished Guests, had brought to the rostrum a number of distinguished American and foreign guests. The visitors were introduced to the House of Delegates by the Speaker and presented greetings from the organizations or countries they represented, as follows:

Dr Morris Hinenburg, American Association of Hospital Consultants

Sir Alexander Fleming, British Medical Association

Dr J. G. Hunter, British Medical Association in Australia

Dr W. C. Atkinson, National Medical Association

Dr Percy T. Phillips, American Dental Association

Mrs. Ralph B. Eusden, Woman's Auxiliary to the American Medical Association

Mrs. Elizabeth K. Porter, American Nurses Association

Brig. Gen. J. A. McCallam, American Veterinary Medical Association

Dr T. C. Routley, Canadian Medical Association

Mr R. Q. Richards, American Pharmaceutical Association

Dr Albert W. Snoke, American Hospital Association

Drs. Guillermo Garcia Lopez, Julio F. Schutte, and Juan J. Mestre, Republic of Cuba

Drs. Norman R. Booher and H. D. Shapiro, American Legion

The Speaker read a telegram of greetings and regret that he could not be present in person from Dr. Wilton L. Halverson, President of the American Public Health Association.

Address of Dr. Howard A. Rusk

Dr. Howard A. Rusk, of the Rehabilitation Mission to Korea for the American Korean Foundation, was introduced by the Speaker and presented the following address:

Mr. Speaker, Mr. President, Members of the House of Delegates, Ladies and Gentlemen: I am here this morning as a substitute for a distinguished colleague, and I shall read his letter, it is dated May 29 from the Korean Embassy in Washington.

I was deeply touched by the invitation of the House of Delegates of the American Medical Association to address them at their annual meeting in New York. As a practicing physician for 28 years to have my profession understand the plight of my people means more to me than you will ever know. I hope that you, having been in Korea, can tell the story.

to our colleagues and express to them my deep regret at not being able to be with them personally as pressing problems in Korea today make it imperative for me to be in Washington. May God bless you all

Sincerely yours
You CHAN YANG Ambassador

It is really presumptuous for me to speak about the problems in Korea. Many of you have been there and seen them personally. Many have spent much more time there than I. The only reason that I have to stand here is that the mission I have just returned from was a little different from the ordinary mission. I went representing the American Korean Foundation which is headed by Dr. Milton Eisenhower, with a distinguished Board of Trustees, to study the health problems and social problems of the Korean civilian. Many hundreds of missions have been there for the military, but this was a civilian mission, and I would like to tell you in these few minutes something about these problems of our brave allies.

First I should like to set the climate. It is very difficult to tell you what Korea is like in this Grand Ball Room at the Waldorf, so come with me on the first week in March to Seoul. It is 15 above zero and sleet. The room is filled with the stench of night soil that you can't get out of your nose, and there is dust that, when the sleet stops and the sun comes out, comes into every crack and gets on your papers and in your skin. Your water to wash with this morning was carried in a bucket from the East River, and your breakfast was a handful of rice. You are cold and hungry. There are 19 million people in South Korea, nine million refugees, two million still on the march. There are 300,000 widows, and that is a particularly difficult problem because, according to the mores of the country, the widows do not remarry. There are 100,000 orphans in so-called orphanages. We stop at the first in Seoul, a Buddhist monastery on a hill. There are 300 children singing at the top of their lungs. Half of them are barefooted, and they are singing Korean songs, and O Susanna, Don't You Cry for Me, I'm Going to Alabama With My Banjo on My Knee. The second orphanage is run by a man who felt sorry for children. He has a hundred. They are sick, and they are deaf, and they are feeble minded, and they are crippled. They are under a roof, and that's all. They have two hops of rice a day, and that is their diet.

I believe I could tell you the story best medically if I could get you to visualize a town of 25,000—White Plains, New York, Alton, Illinois, any place about the country of that size. The plumbing is out. One fourth of the houses are destroyed. One-fourth are in ruins. There is no water supply except what you carry. In that town, there are 1,400 patients with tuberculosis. Five hundred of them are actively ill. Ninety per cent of the population has intestinal parasites. They are all cold and all hungry, and you are the one doctor to meet the need. There are 815 doctors, not trained by our standards, but graduates of the Japanese schools, responsible for 19 million civilians, and that is 1 to 25,000. There are 55,000 cases of leprosy in Korea. Public health is the best of all the government agencies, because, at the end of the war, General Steve Simmons brought twelve young Korean physicians over here, and, under Rockefeller fellowships, they trained in public health at Hopkins, Michigan and Harvard. With them and UNIPAC, Korean medical police, they have controlled to more than 95 per cent typhoid, smallpox, typhus and malaria.

I would like to say a word about the Korean people. It has been said they are the Irish of the Orient. To have a people that are hungry and that are meeting the needs of 80 per cent of the front lines and fighting next to troops who have meat three times a day and steak three times a week, and all the ice cream they can eat, and to be on 3,200 calories with rice and a side dish, which is usually cabbage or Korean turnips, and meat or fish twice a month and still love the man that you fight next to, and still keep your sense of humor, shows the heart of those people. I said to one Korean, 'They tell me you Koreans are the Irish of the Orient,' and his response was, 'Whoever told you that is wrong. The Irish are the Koreans of Europe. To me, they

are a cross between the Greeks and the Israelis and the Finns and the Irish put together, with the American spirit added. General Ryan, General Taylor or anyone there will tell you that there is no greater fighting man in the world today than the Korean General Pack, the Commanding General who was here in New York last week, is 32 years old, four stars, and he held Seoul in the early days. He said, 'Early days they say Korean coward, he run Korean have five days' training when he go to front line. He never see tank. He never see artillery. Korean trained today. He no run.'

I think that I have never been as proud in my life to be an American doctor as I was in Korea, not only because of the greatest record of all time in the care of the troops and the care of the wounded, but there isn't a doctor on duty there who is not teaching in one of the medical schools, who is not working in an orphanage or a children's clinic or some place after hours, because he is an American doctor and because he feels for these people. In going through provincial hospital after provincial hospital, I found patients on the floor on blankets, perhaps one or two doctors, and doctors and nurses working 16 hours a day, seven days a week, and going home for their meals. I never heard a child cry or a patient groan in pain or saw a patient vomit who was not receiving attention. I never heard a Korean say but one thing, 'If you will help us off our knees, we will take care of ourselves and we will fight to the last man to defend our country for freedom and against Communism, but we have to build our fertilizing plants and we have to get our fisheries going to stand on our own feet.' I believe that we shall never be able to give anything to Korea. I think that anything that we send will only be a small token payment on the debt that we owe to the people of this country who, after 50 years of Japanese domination and five years of freedom, accepted the torch to defend themselves against Communism. I think that we in medicine have a particular role and a particular opportunity, because it is our job to bind the wounds of war and bind the wounds of a country when it comes to making the peace.

There are six medical schools in Korea, and only two are just opening. There are no books, there is no equipment, there is nothing but a desire to learn. Through the cooperation of General Armstrong, books and magazines and equipment, anything that you may have, can be shipped to Kormed, Alameda Army Depot, Alameda, California, and it will be shipped on to our colleagues in Korea. Through the efforts and understanding of your President, our President, the World Medical Association has taken the Korean medical profession under its wing, and already the pharmaceutical houses, through the World Medical Association and through our own American Korean Foundation, has shipped more than 20 tons of drugs to Korea, and they are making all of their publications available in quantity for every Korean doctor.

Next week, the President has proclaimed Korean Week, and every governor in every state has proclaimed it in his state, so that we in America can show the people in Korea how we feel about them as person to person. We have to do as much as the GI has done. He started calling them Goofs, and now he calls them Buddies. As one boy said to me in a hospital, 'I have told my family not to send me any more food packages, but to send me something for the families of my Korean friends.' I think that we in medicine in America should send the message to our colleagues in Korea that we are with them, that we want to help them. It will mean much, for once this war is over, I think at long last in Korea we will have a chance to win the peace, and we in medicine have a great opportunity and a great privilege to take part in such winning.

Presentation and Addresses of Student A M A Delegates

Mr. Russell F. Staudacher, Executive Secretary, Student American Medical Association, escorted to the rostrum Mr. Charles J. McGaff and Mr. Joseph E. Mason, delegates of the Student organization to the House of Delegates. The Speaker introduced Mr. McGaff, who addressed the House as follows:

Mr Speaker Mr President Members of the House of Delegates and Friends The Student American Medical Association appreciates as always, the privilege of attending your meeting of the House of Delegates. We also appreciate this opportunity to tell you that the young association which you so generously helped into being less than three years ago now has 64 chapters in the nation's 79 medical schools, and we represent now more than 16,000 dues-paying members. The Student American Medical Association's financial picture has also brightened with our other successes, and as of the end of our fiscal year, June 30, 1953, we will have sufficient assets to repay all of the obligations and loans incurred during these first years. However, rather than deplete our treasury, the Executive Council of the Student American Medical Association has decided to repay our obligations in installments. Therefore, it gives me great pleasure to present this check for \$10,000 to the American Medical Association in partial payment for the generous assistance it has so freely given our fast growing organization. Thank you very much!

Mr Joseph E. Mason was introduced by the Speaker and offered the following remarks:

Mr Speaker I am very happy to be here and feel most privileged to have the opportunity to represent the Student American Medical Association at this convention. In turn, I would like to invite you to attend our national convention to be held in Chicago on June 15, 16, and 17 at the Edgewater Beach Hotel. We only hope that we can show you just a fraction of the hospitality, friendliness and cooperation which has been tendered us since our arrival here. May I also add that Mr McGaff and myself will be most happy to discuss any of the numerous functions of the Student American Medical Association with you. In closing, I would like to take this opportunity to wish you a most successful and profitable convention. Thank you!

Address of the President-Elect, Dr Edward J. McCormick

Dr Edward J. McCormick, President Elect, presented the following address, which was referred to the Reference Committee on Reports of Officers:

Mr Speaker, Dr Bauer Distinguished Guests Officers and Members of the House of Delegates of the American Medical Association Because of the many problems to be studied and considered at this session, the remarks of your incoming president will be brief. I am grateful to you who have elevated me to high office. I am humble, because I can look back at a long line of America's most distinguished physicians who have preceded me as President. The history of our organization, and its accomplishments, testify to the quality of its leadership through the years. As a member of this House, its councils and committees, and of the Board of Trustees, I have had ample opportunity to learn and to know the aims and purposes of American medicine. Like most of you, I have spent countless days and hours and have traveled thousands of miles in the interest of the American Medical Association's policies as defined by you—the representatives from our states and territories, the representatives of 140,000 physicians.

With the thought in mind that most medical problems have been studied in the course of the century, it would seem difficult, if not impossible, for a President-Elect to suggest a new program. Nor is such a course necessary. The important consideration is to strive to perfect the movements already initiated. The American Medical Association is a great organization. We have made rapid strides in the past ten years. All departments and councils have been expanded. The Councils on Medical Service, Rural Health, and National Emergency Medical Service, the Committees on Research, Mental Health, and Blood, the Washington Office and the Department of Public Relations all have come into being in the last decade. With the aid of a competent headquarters staff, our various councils and committees have considered virtually every scientific and economic facet of medicine. This increased activity has resulted in increased national prestige and in heavier demands on the officers and trustees. It has been matched by a rapid growth in the activities of state and county societies. This has necessitated better liaison between the national association and local

medical groups. We have added field men to our staff, and all department heads, officers, and trustees are doing more traveling to meet with constituent and component societies. To me, this phenomenal progress is the result of intelligent and fearless leadership in this House and in each and every state and county society. I am relying on the continuation of this leadership to make my administration comparable in progress with those that have preceded me during recent years.

I would like to make a few suggestions today in the hope that you will consider them favorably and take them home to your state societies. These ideas are not new, but their further development will solve many of medicine's problems and eliminate much of the criticism to which we are subjected.

(1) The distribution of doctors is a problem. Much has been done by medical organizations to solve it. Placement services are now in existence in 37 states. Of these, 32 are operated by medical societies. Other societies have set up successful scholarship programs for young men and women willing to return to general practice in the rural areas of their states. It is important to the future of medicine that every community have access to a physician. Medicine must actively aid those communities which are trying to attract doctors by building modern facilities for them.

(2) Whenever one speaks to persons about medical service, the availability of physicians enters the conversation. Over 600 of our county medical societies now have 24-hour emergency call services. I urge all others to support such a system. The importance of this activity is self-evident.

(3) Every medical society must have a strong and fearless mediation committee to hear patients' complaints. Those must not be whitewash committees. They must be true to the purpose of their founding by reprimanding and disciplining physicians found guilty of exploiting their patients. Only in this way can public confidence in medicine be maintained.

(4) Physician and hospital relationships must be clarified and steps taken toward mutual cooperation. The Board of Trustees has done much work on this problem during the past year. I advise the formation of physician hospital committees by state and county medical societies to work toward better relations in local communities. This has already been done with some success in Massachusetts, Connecticut, and other states.

(5) Every county society should become an active unit in the nationwide effort to develop and expand voluntary health insurance. We must find ways of providing protection against catastrophic illness and coverage for older age groups.

(6) Too many physicians have been isolationists within their communities. Local societies should encourage each individual member to participate in some civic undertaking. We physicians should be rendering health leadership in all service clubs, fraternal organizations, Parent-Teacher Association groups, church associations, and unions. We cannot expect these organizations to be interested in our problems if we are not interested in theirs. We must rub elbows on a social and organizational basis with persons outside the profession.

(7) Continued emphasis should be placed on improving the public relations techniques of individual physicians. Every doctor must be brought to realize that public relations begins in his or her office—that the way in which they treat patients reflects for good or ill on the entire profession. Medical societies are frequently hampered in their efforts to build public understanding by the doctor who overcharges, the doctor who rudely refuses to answer a night call no matter how urgent, or the doctor who keeps patients waiting for hours in his reception room without any explanation.

(8) There are some newspaper and radio people who honestly believe some of the untruthful charges which have been made against medicine. All county and state societies should make continued efforts to develop a close association with writers for press, radio, and television. Through frank, thorough discussion of medicine's problems and what is being done about them, these people can often be transformed into working allies for medicine's cause. We often find we have

been striving for the same goals and that our distrust of each other has been based solely on misunderstanding

(9) There is a need for unity within the profession. A few years ago, when we had to close ranks and fight shoulder to shoulder against an immediate threat of compulsory health insurance, we worked as a team. With some of this pressure off, I have noticed a distressing regression toward petty internal wrangling, charges and countercharges, and divisive activities by various groups within the profession.

Constructive criticism has a universally recognized place within any democratic group. I always respect a man who stands up on the floor of this House of Delegates and in ringing tones announces his beliefs. I expect every man to vote according to his principles. I believe that different opinions should be given ample opportunity to be heard before the various reference committees of the House. Certainly I know that every letter written by a member or a delegate to the Secretary and General Manager or the Board of Trustees is given respectful attention. This same atmosphere should prevail in our county and state societies, for only by allowing free expression of opinion can progress be made. Once this House has voted on an issue, however, I believe we should understand that the democratic process has had its way and the majority has ruled. If we believe in democracy, we have to be prepared to accept with good grace a decision contrary to that we would have preferred. This does not mean we cannot continue to work for our beliefs. We should work for them in an orderly fashion within the ranks of organized medicine, and we should encourage all physicians to work for change in this way. Quiet persuasion can be a potent force. On the other hand, violent charges in the public press and uninformed testimony before Congress are destructive rather than constructive tactics.

As members of the House of Delegates of the American Medical Association, and as officers and trustees of this greatest of all medical organizations, we must at all times be conscious of our twin roles as physicians and statesmen. We must be concerned first and always with what is best for the public and for the profession as a whole, not with what is best for our own particular interests. We must speak with the tongue of reason and the courtesy of gentlemen, and we must base our statements on fact. If we adopt this attitude, and encourage other physicians to do likewise, perhaps the medical profession can continue to pull as a team. Certainly we shall make more progress that way.

In closing, may I repeat the pledge I made to you a year ago—that I shall devote myself with singleness of purpose in the coming year to serving you and, in serving you, to advance the ethical standards of American medicine and promote the public health and welfare.

Report of Reference Committee on Reports of Officers

Dr George A. Woodhouse, member, presented for Dr Wyman D. Barrett, Chairman, the following report, which was adopted:

In the first official appearance of Dr McCormick before the House, he presented many problems to be studied and considered. His remarks were pointed and his suggestions for future accomplishment were sound. He outlined the activities of the American Medical Association and its various component parts and then presented for the consideration of the House a number of pertinent suggestions which will be discussed by your committee.

(1) The necessity for providing additional placement services in certain sections of the country, to be operated by state or local medical societies, and the scholarship training programs of state societies were pointed out so that if possible every community will have access to a physician.

(2) Your committee recommends that the twenty-four hour emergency call service be extended throughout the country whenever possible.

(3) Each county medical society should immediately set up "Mediation Committees" to hear patients' complaints. Your committee suggests that the title "Mediation Committee" in-

stead of "Grievance Committee" be adopted as the terminology.

(4) Dr McCormick's suggestion of the physician-hospital relationship being clarified would be best handled by, as he suggested, a liaison physician-hospital committee at the state and county levels.

(5) It is recommended by your committee that each county medical society take an active interest in developing and expanding the voluntary health insurance program.

(6) The recommendation that the profession become more interested in all local activities is excellent and is approved by your committee.

(7) A keystone of the problem of public relations between the profession and the public rests in the office of the individual doctor and his contact with his patients.

(8) Your committee is of the opinion that publicity and press relations committees should be set up in all state and county medical societies that have not done so. In this manner, only proper information will be released to the public.

(9) Your committee agrees that there is need for unity within the profession and this can be accomplished by better ethical and professional relations. Individual physicians have the prerogative of disagreeing with decisions made by the House of Delegates at any time. However, their criticism should be of a constructive nature.

After reviewing the address of Dr McCormick, your committee is of the opinion that his projected program for the ensuing year will provide the American Medical Association with continued outstanding leadership.

Report and Supplementary Report of Board of Trustees

Dr Dwight H. Murray, Chairman, presented the following report of the Board of Trustees (see THE JOURNAL, April 25, 1953, pages 1495-1497, for the Financial Statement and Treasurer's and Auditor's reports) which was referred to reference committees as follows:

To the Reference Committee on Reports of Board of Trustees and Secretary: Financial Statement, Dues of the Association under the heading Report on Matters Referred by House of Delegates, St. Louis Meeting, Treasurer's Report, Auditor's Report, and Appreciation.

To the Reference Committee on Medical Education and Hospitals: Resolutions on Problems of Accrediting Nursing Schools, Resolution on Definition of Medical and Dental Services, Hospital-Physician Relationships.

To the Reference Committee on Insurance and Medical Service: Resolution on Responsibility of the Government in the Medical Care of the Citizen, Professional Liability Insurance, Liaison Committee to Organizations Concerned with the Care of Veterans.

To the Reference Committee on Miscellaneous Business: Report of Committee for the Study of Relations Between Osteopathy and Medicine.

Except for the item on Dues of the Association, no reference was made of the Report on Matters Referred by the House of Delegates.

REPORT ON MATTERS REFERRED BY THE HOUSE OF DELEGATES

Resolutions. The following resolutions, adopted by the House of Delegates in December, 1952, were referred, in accordance with recommendations of the House, to the councils or committees indicated.

(1) Two resolutions on the subject of medical malpractice liability insurance, one introduced by Dr Herbert P. Ramsey, District of Columbia, and the other by Dr J. P. Culpepper, Mississippi, to the Council on Medical Service.

(2) Resolutions on funding of policies of the House of Delegates, introduced by Dr Ralph A. Johnson, Michigan, to the Council on Constitution and Bylaws.

(3) A substitute resolution on responsibility of government in the medical care of the citizen, introduced by Dr Russel V.

Lee, Section on Military Medicine, to the Council on Medical Service,

(4) A resolution on establishment of a permanent bureau to deal with problems concerned with the relationships between physicians and lay technical workers in auxiliary fields of medicine, introduced by Dr Frank H Krusen, Section on Physical Medicine and Rehabilitation, for that section and for the delegates of seven other sections, to a committee composed of representatives of the Board of Trustees and the Council on Medical Education and Hospitals which is studying the whole question of relations between physicians and professional, non-physician groups, and

(5) A substitute resolution for the resolution on the problem of accrediting nursing schools introduced by Dr Wendell C Stover, Indiana, to the Joint Commission for the Improvement of the Care of the Patient

Final reports have not as yet been received on these matters but it is hoped that they will be available in time to be included in a supplementary report of the Board to the House

Dues of Association In December, 1952, the House of Delegates adopted the following recommendation of the Reference Committee on Miscellaneous Business on the subject of billing and collecting American Medical Association dues

Your committee believes that there is considerably more dissatisfaction with the present rate than has been brought to the attention of the Board of Trustees. Apparently this rate of 1% does not cover the cost of billing and collection of dues especially in those states with a large membership. Your committee suggests that the Board of Trustees give serious consideration to the establishment of a sliding scale of payment to take care of the differences in these costs

It is believed that the present rate of 1 per cent does not cover the cost of billing and collecting Association dues in many state societies, in others, however, it is adequate. From what the Board of Trustees can learn, the methods of collecting the dues in the various state societies have been improved considerably and the work involved has been greatly reduced. Furthermore, it is believed that with time this can be lessened to a point where some evaluation can be made on a sound basis. At the present time it is thought that possible short-cuts to collecting have not been exhausted in some of the states. Several societies bill members separately for American Medical Association dues, others have elaborate systems of bookkeeping. These methods, of course, increase the expense.

The Board of Trustees asks the indulgence of the House of Delegates for a further period of experimentation before any definite system is established relative to the billing and collecting of dues for the parent organization.

Definition of Medical and Dental Services The resolution on the definition of medical and dental services, introduced by Dr Gordon F Harkness, Section on Laryngology, Otology and Rhinology, was given serious consideration by the Board of Trustees and a committee was appointed to study the matter. A meeting was held on March 21 with several representatives of the Board of Oral (Dental) Surgery of the American Dental Association in an effort to arrive at an equitable solution to this problem. A statement on the results of the meeting will be presented by the Board of Trustees in a supplementary report.

Federal Medical Services As recommended by the House of Delegates in its adoption of the report of the Reference Committee on Insurance and Medical Service, the Board of Trustees appointed a committee composed of Drs E S Hamilton, Chairman, W B Martin, James R McVay, Louis M Orr II, and J D McCarthy, with E L Henderson as consultant, to confer with representatives of the veterans' organizations, the American Dental Association, the American Hospital Association, the Department of Defense, and the Veterans Administration in an effort to resolve the problem of the medical care and hospitalization of veterans with non-service-connected disabilities.

A meeting of this committee with representatives of several interested organizations was held in Washington, D C, on March 1. A report on the proceedings will be incorporated in the supplementary report of the Board.

Prerequisite for Specialty Board Certification In his address before the House of Delegates in December, 1952, Dr Louis

H Bauer, President, recommended the appointment by the Board of Trustees of a committee to confer with a committee from the Advisory Board for Medical Specialties to learn whether some change can be made to increase the number of general practitioners.

A resolution, similar in intent, suggesting that the Speaker of the House appoint a committee to study the possibility of requiring one or more years' service in general practice as a prerequisite to specialty board certification was introduced by Dr A C Scott Jr, Texas.

Both recommendations were adopted by the House of Delegates and, in accordance with the directives of the House, its Speaker and the Board of Trustees selected the following committee to study the problem: Drs A C Scott Jr, Texas, Eli S Jones, Indiana, Norman S Moore, New York, and ex officio, F J L Blasingame and David B Allman, Trustees.

Medical Specialty Boards The statement adopted by the House of Delegates in December, 1952, reiterating its position previously established with respect to the recognition and approval of only one certifying board in each of the specialties of medicine, was, in accordance with the recommendation of the Reference Committee on Medical Education and Hospitals, transmitted to the Advisory Board for Medical Specialties, the individual specialty boards, the American College of Surgeons, and the International College of Surgeons.

Privilege Tax by Hospitals The action of the House of Delegates in condemning the practice of requiring all physicians using a hospital to pay to it a certain percentage of their fees received from hospitalized patients, brought to the attention of the House by the Judicial Council in its report in December, 1952, was referred to the American Hospital Association for dissemination to its membership.

In some instances throughout the above report it has been indicated that a statement on a subject will be presented as a part of the supplementary report of the Board of Trustees. This is necessitated by the fact that the study groups were still working on the projects referred to them and have not had sufficient time to prepare a final report for action by the Board of Trustees prior to the publication date of the Handbook.

ST LOUIS SESSION

The St Louis Medical Society nominated Dr Llewellyn Sale Sr as General Chairman of the Local Committee on Arrangements for the St. Louis meeting to be held Dec 1-4, 1953, and the Board of Trustees unanimously confirmed the nomination.

APPRECIATION

I should like to express my appreciation to the members of the Board of Trustees for their diligent efforts in their consideration of the multiple and complex problems of the Association which have been referred to them in the past year. Meetings are becoming more numerous and longer, and the number of committee appointments for each member of the Board is increasing. The time and effort spent by the members of the Board is a great service to medicine. I should like also to call the attention of the members of the House of Delegates to the amount of travel and time put in by our President, who, as President Elect, traveled over 50,000 miles and as President, 100,000 miles. During that time he has visited 32 states, some of them more than once, and 21 countries. The President-Elect has traveled many thousands of miles, he has visited 18 states, some of them two or three times. The Secretary and General Manager has also spent much of his time in travel and has visited a number of state societies at their annual meetings, as well as societies which are associated with the American Medical Association but are not constituent or component societies thereof. I wish to call the attention of the House of Delegates to the effort that is being put forth by your Association to carry information on medical problems to the four corners of the United States and to the countries of the world.

With increasing responsibilities of the Association, in like manner the duties and responsibilities of the staff have increased. The staff at all times has very willingly rendered prompt and capable service to the general officers. Such assistance is duly appreciated by those whom they serve.

Report of Reference Committee on Reports of Board of Trustees and Secretary

Dr H Russell Brown, Chairman, presented the following report, which was adopted

Financial Statement in Report of Board of Trustees Your committee views with approval the excellent financial condition of the Association and particularly the improved collection of dues during 1952. While there has been a marked increase in material, labor, and salary costs during the past year, your committee believes that the Board of Trustees should be commended for the excellent financial result in the management of funds. This committee notes with concern, however, the increased expenditures during 1952 of the Councils, Bureaus, and related activities, and urges the Board of Trustees to evaluate carefully the increases in their budgets. The accounts of the Association have been audited in the proper manner by an independent accounting agency.

Dues of the Association Your committee recognizes a divergence of opinion among state medical associations regarding methods and costs in the collection of American Medical Association dues. It believes that the Board of Trustees should be granted its request "for a further period of experimentation before any definite system is established relative to the billing and collection of dues for the parent organization."

St Louis Session Your reference committee notes with satisfaction the report of the Board of Trustees regarding arrangements for the St Louis session.

Supplementary Report of the Board of Trustees on Appreciation, Presented by Its Chairman, Dr Murray Your committee concurs wholeheartedly with the report and wishes to add its approval of the excellent work done by the Board of Trustees, general officers, Secretary and General Manager, and staff of the Association.

RESOLUTIONS ON PROBLEM OF ACCREDITING NURSING SCHOOLS

In accordance with the recommendation of the Reference Committee on Medical Education and Hospitals adopted by the House of Delegates in December, 1952, the Board of Trustees referred the substitute Resolutions on Problem of Accrediting Nursing Schools to the Commission for the Improvement of the Care of the Patient for consideration and report.

The American Medical Association's representatives on the Joint Commission, together with the Director of the Accreditation Program of the National League for Nursing, Inc., and a representative of the American Hospital Association, met in Chicago on Feb 8. The Committee met again on March 6 and 7 to review the problem presented by the resolution. Consideration was given to facts and figures on the number of available nurses, the Accreditation Program of the National League for Nursing, the number of enrollments in nursing schools in the country, and the role of the trained practical nurse in the care of the sick, and the following recommendations were made to the Board of Trustees:

1 It is accepted by all groups that a shortage of nursing personnel exists particularly in the field of bedside nursing.

2 Your committee recommends the approval in principle of accreditation of nursing schools and recommends that your representatives on the Commission for the Improvement of the Care of the Patient keep the Trustees informed as to changing conditions and procedures.

3 It recommends that the project be correlated with that of the Joint Commission on Accreditation of Hospitals, the method to be recommended by the Joint Commission after conferences with the representatives of the nursing groups, or that a special group made up of hospital administrators, nurses, and doctors carry on the program.

4 Conferences have been held in various parts of the country with state nursing leaders in attendance. It is recommended that physicians, hospital administrators and members of hospital boards of trustees be invited to participate in these conferences.

5 In some instances where difficulties have arisen informal conferences have been held with benefit to all.

6 Your committee strongly reaffirms its recommendation of 1948 that the present three year program for diploma training courses be reduced to two years.

7 In 1948 your committee recommended that provision be made and credits allowed in selected cases for advancement from trained practical

nurse status to hospital diploma courses and from hospital diploma status to collegiate degree courses without loss of time. It strongly reaffirms its position.

8 Your committee also recommends that the trained practical nurse program be a joint effort of doctors, hospital administrators, and nurses.

The Board of Trustees has approved the report presented and wishes to submit the recommendations to the House of Delegates for its consideration and action.

RESOLUTION ON DEFINITION OF MEDICAL AND DENTAL SERVICES

At the meeting of the representatives of the Board of Trustees and the American Board of Oral Surgery (Dental), the American Dental Association and the American Hospital Association, held on March 21, 1953, for a discussion of the Resolution on Definition of Medical and Dental Services adopted by the House of Delegates in December, 1952, the following statement was approved by those in attendance. Subsequently it was approved by the Board of Trustees for presentation to the House of Delegates at this time with the recommendation that it be adopted.

The position adopted by the representatives at the meeting on March 21 was to the effect that the oral (dental) surgeon be assigned to the surgical service of a hospital and to perform such professional duties as the chief of the surgical service directed. The members of the American Board of Oral (Dental) Surgery stated that this plan was one which they drafted similar to that of the Joint Commission on Accreditation of Hospitals and was fully satisfactory.

HOSPITAL-PHYSICIAN RELATIONSHIPS

I would like to give you a little background information on the report on hospital physician relationships which the Board of Trustees wishes to submit at this time to the House of Delegates.

In 1951 the Board appointed a committee to meet with representatives of the board of trustees of the American Hospital Association for a discussion of matters of mutual interest. During the past months several meetings have been held by representatives of the two organizations. At the last session, held on March 21, 1953, a statement on the question of hospital-physician relationships was prepared and approved by the representatives of the two groups and was also approved by the Board of Trustees. The statement is submitted at this time to the House of Delegates for whatever action it wishes to take.

REPORT OF THE JOINT COMMITTEE ON HOSPITAL-PHYSICIAN RELATIONSHIPS OF THE BOARDS OF TRUSTEES OF THE AMERICAN MEDICAL ASSOCIATION AND AMERICAN HOSPITAL ASSOCIATION

Physicians and hospitals are both concerned with rendering medical care. Their first consideration is their desire to promote the welfare of the patient and the community which they serve. Physicians are the individuals who provide medical care—whether it be in the home, the office, or the hospital. With the ever increasing complexity of modern medical care, however, the role of the hospital in providing an organization and an environment in which the physician may care for patients is assuming increasing importance.

Problems associated with the evaluation of services by hospitals and by physicians are different. It is possible to develop minimum standards in a hospital by which the adequacy, type, and quality of hospital service may be measured and compared and the cost per unit of service determined. It is much more difficult to evaluate the services of a physician. Specialty boards have done much to improve the quality of service. Although a specialty board may find that an individual has had good training and that he is capable of carrying out certain procedures, it cannot know what is in his heart and soul, his sense of obligation, or degree of devotion to his duty.

With the increase in size and complexity, care rendered in hospitals tends to become less personal. In an effort to overcome this, hospitals have striven to indoctrinate all associated with them in the desirability of developing a more individual touch. Medicine, on the other hand, by its very nature, is more personal. It is both a healing art and a science. These two

cannot be divorced without grave injury to medicine and to the quality of care received by patients both within and without the hospital

With the rapid advance of the science of medicine in the past fifty years, the importance of the art has been lost sight of by many. The tendency to put faith in the physical attributes of medicine—building, equipment, and technicians—has developed to an increasing degree a mechanistic rather than an intellectual and spiritual approach to medicine and its problems. One evidence of this has been an over use of and over-dependence on technical procedures in hospitals at the penalty of increased operating costs and possible deterioration in the quality of performance of these technical procedures. This fault does not lie alone at the door of hospitals, since physicians are responsible for the number and type of procedures ordered. It is, however, the result of our present operating procedures and illustrates the failure to integrate adequately the administrative and professional aspects of the hospitals.

On the other hand, the idea that a hospital should be merely a physician's workshop and supply the facilities and tools to allow him to work unhampered by restrictions is untenable. These tools are too numerous, too unwieldy, and too expensive. Their use needs the coordinated efforts of many persons—nurses, dietitians, technicians of all kinds—as well as those of a physician or physicians. Their proper use still requires the fine discrimination in their selection and application that only a physician can supply.

The administrator, under the direction of a governing board, has the primary responsibility of running a good hospital in which good medical care is provided. He is concerned with costs, personnel, housekeeping, maintenance and expansion of facilities, as well as with the medical care provided in the institution. It is his responsibility to coordinate into a smooth-running whole the multiple activities of his institution. He looks to the board on the one hand and to the professional staff on the other. Because of the nature of his position and his responsibilities, he looks more directly to the board. His worth, however, must be evaluated finally on the basis of how well he maintains a good hospital within available resources.

The governing boards of hospitals are usually made up of men and women of demonstrated ability, occupying positions of prominence, who have evinced interest in community welfare. These persons add strength to the hospitals by their names, general knowledge of affairs, money-raising power, and prestige. They are not necessarily particularly informed as to the many intricate problems involved in the production of good medical care. While there are many who go deeply into the problem of hospital finances and management, few of them ever have the opportunity to make themselves familiar with the problems of medicine. The very nature of their assignment continues this segregation of thought. The board has frequent and often intimate contacts with the administrator and little or none with the professional staff or its representatives. If they have opinions on medical matters, they are likely to be gained from their personal medical advisor or by casual contacts at social gatherings or on the golf course. It follows, therefore, through no fault of his own, that the administrator may have undue influence with the board in professional matters as well as those that properly come within his province.

Misunderstandings between hospital management and the medical profession arise from fears concerning each other. Some of these are reasonable and some are unreasonable. Some arise from conflicts of personality in particular institutions. These differences have been aggravated by certain general trends and by proposals coming from within and without the ranks of those providing medical care. A physician desires to maintain and strengthen the art of medicine as well as promote the greatest possible advance in the science of medicine. He sees medicine more and more mechanized and coming more and more under the direction of administrators and boards in hospitals.

The administrator and the board are concerned not only with the over-all quality and quantity of service rendered by

hospitals but also with the financial integrity of their institution. Certain of the factors involved in the production of good medical service come directly and properly under their control. They may be disturbed, however, by dissension in the professional staff, by clique or favoritism, or by failure of the staff to maintain a high quality of professional service. Hence, they may be tempted to interfere with professional control or professional practice. It should be noted that in the past professional standards have been raised substantially through the influence of professional groups and by the action of special committees of the professional staffs of individual hospitals. It would seem unnecessary to state that in a learned and highly technical profession the true qualifications of a member can only be judged by other members of the same profession. The administrator and the board are also troubled at times by multiple and unreasonable demands made on them by the professional staff. This often arises from lack of understanding on the part of the staff members of the total responsibility of the administrator and the total load on the resources of the hospital.

It is a basic principle that hospital governing boards and administrators should not attempt to tell physicians how to practice medicine but rather must see that the hospital medical staff organizes to provide a framework for staff self government which will maintain and improve the quality of medical care in the hospital.

Physicians, on their part, must understand that the hospital governing board is legally and morally responsible for the entire operation of the hospital. The medical staff is responsible to the governing board for proper medical care in the hospital.

The medical profession has provided leadership in improving the quality of care in hospitals. Such efforts, however, do not always receive the support of every member of the hospital medical staff. The authority of the hospital governing board and administrator may be used to enforce rules not complied with by individual members of the staff, although the rules have been developed and approved by vote of the organized medical staff. This authority of the hospital governing board and administrator, when in proper focus, has been an important force in improving the quality of care in the hospitals of this country.

Lack of understanding and appreciation of these important relationships has caused much criticism and irritation between the members of the hospital governing board, the medical staff and the administrator.

A continued increase in the utilization by hospitals of full time professional men has disturbed many physicians. In the early days of radiology and pathology, this did not seem a threat to the profession. With the great increase in these services and the advent of anesthesiology, physical medicine, cardiology, and other specialties, this threat and the possibility of friction has increased. The practice in certain hospitals of engaging full time obstetricians, surgeons, and other specialists has stirred this alarm further. The trend toward a situation, however, where hospitals with a complete full time staff are engaged in the practice of medicine for a fee, is a matter of concern to many physicians. The profession justly feels that it may lose its independence and become merely a group of high grade technicians, however respected or highly paid. There are many who believe that a group of physicians working full time, under a lay board, will not produce the best of medical care. There are, however, those in the profession who support the principle of "full time" as a means of providing good medical care in a hospital.

Recognizing the intimate relationship and mutual problems, it follows, then, that there must be a clear and well-defined division of responsibility between the professional staff and the governing board of the hospital. Since they are mutually dependent on each other in providing good care in the hospital, they should be mutually assured by methods of organization that neither can encroach on the proper domain of the other. If all board members, administrators, and physicians were saints, possessed of infallible judgment, perfect in their

training and beyond reproach in their actions, there would be no problem. Since these assumptions are not true, it is necessary to adjust their relationship on a basis that will maintain the prerogatives of each. To accomplish cooperation and understanding, there must be a free flow of information and ideas between the professional staff, the administrative head, and the governing board. Each must accept the primacy of the other in certain fields and all must recognize their interdependence in accomplishing their primary objective. Physicians must become familiar with problems of hospital administration and financing. If they do, they will be more understanding and cooperative in conserving the hospital resources and less demanding in their own requirements. They will also be a much more effective instrument in gaining for a hospital community support for its proper operation.

In order to accomplish these objectives, some mechanism must be set up that will bring into frequent and close contact the partners in the hospital endeavor, the administrator, the governing board and the professional staff. It is also necessary that the relationship between physicians and hospitals be clearly defined and, as a guide toward this aim, the following principles are recommended:

1. The general purpose of hospitals and physicians is to aid each other in the delivery of the best possible medical care to patients. To attain such a purpose requires full cooperation among medical staffs, governing boards and administrative heads of hospitals. One important method of attaining this objective is that duly designated representatives of the medical staff shall have free and direct access to the governing board with due consideration to the position of the administrator as chief executive officer of the hospital. The various methods by which the medical staff may have access to the hospital governing board follow. These methods are not listed in the order of their desirability and there may be other acceptable liaison plans developed depending on local conditions.

- (A) The executive committee of the medical staff and a committee of the governing board with the hospital administrator can serve as a joint committee.

- (B) Representatives of the medical staff can serve as members of the medical staff committee of the governing board with the hospital administrator.

- (C) Representatives elected by the medical staff can attend meetings of the hospital governing board.

- (D) Members of the medical staff can be members of the hospital governing board.

2. The professional evaluation of chiefs of service and members of the medical staff should be the responsibility of the medical profession. The method of selection of these individuals must be subject to local arrangement and local conditions. In any such arrangement however the principle of the freedom of the staff to make recommendations subject to the approval of the hospital governing board, should be recognized.

3. The medical profession and the hospitals recognize that certain special services such as anesthesiology, pathology, radiology and physical medicine are integral parts of the practice of medicine and of the services necessary for hospital patients. Physicians in these fields should have the professional status of other members of the medical staff. Chiefs in these specialties must assume also the administrative responsibilities and relationships customarily associated with such positions.

4. The right of an individual to develop the terms of his services on the basis of local conditions and needs is recognized but such contractual arrangements should in all cases ensure (a) the policy of professional incentive for the physician and (b) progressive development of the hospital departments involved in order that increasingly improved services to patients may be rendered. Moreover a physician shall not dispose of his professional attainments or services to any hospital lay body, organization group or individual by whatever name called or however organized, under terms or conditions which permit exploitation of the patient by the hospital or the physician.

5. The chief of a hospital department may have access to financial information regarding his department.

6. It is desirable that means should be provided at local, state and national levels for review of problems of individual hospital-physician relationship by organized medical and hospital groups.

Report of Reference Committee on Medical Education and Hospitals

Dr H. B. Wright, Chairman, presented the following report, which was adopted:

Supplementary Report of the Board of Trustees on the Problem of Accrediting Nursing Schools. The Board of Trustees having conferred with the Commission for the Improvement of the Care of the Patient, the Director of the Accreditation Program of the National League for Nursing, Inc., and a representative of the American Hospital Association, agreed to recommend an eight point program. Your Reference Committee would like to cite particularly Point 6, dealing with the recommendation to reduce the present three

year program for diploma training courses to two years, to Point 7, recommending selected cases for advancement from trained practical nurse status to hospital diploma courses, and from hospital diploma status to collegiate degree courses without loss of time, and to Point 8, in which the committee recommends that the trained practical nurse program be a joint effort of doctors, hospital administrators, and nurses. Your reference committee is in full accord with the supplementary report of the Board of Trustees and recommends its adoption.

Supplementary Report of the Board of Trustees Concerning the Resolution on Definition of Medical and Dental Services. Following a meeting with the American Board of Oral Surgery (Dental), the American Dental Association, and the American Hospital Association, the agreed recommendation was as follows:

The position adopted by the representatives at the meeting on March 21 was to the effect that the oral (dental) surgeon be assigned to the surgical service of a hospital and to perform such professional duties as the chief of the surgical service directed. The members of the American Board of Oral (Dental) Surgery stated that this plan was one which they drafted similar to that of the Joint Commission on Accreditation of Hospitals and was fully satisfactory.

Your reference committee recommends that the word "the" preceding the phrase "surgical service of a hospital" be changed to the word "a" so that it would then read, "be assigned to a surgical service in a hospital."

Your reference committee further recommends that the following definition of a dental-oral surgeon be included in the report:

Dental-oral surgery is to be limited to diseases of the teeth and jaws and lesions of contiguous soft tissues related to diseases of the teeth and jaws but excluding malignancies.

Report of the Joint Committee on Hospital Physician Relationships of the Board of Trustees of the American Medical Association and the American Hospital Association. This excellent report presents a general statement of the principles which in some respects are more specifically stated in the Guide to the Conduct of Physician Hospital Relationships. Your reference committee recommends approval of this report.

RESOLUTION ON RESPONSIBILITY OF THE GOVERNMENT IN THE MEDICAL CARE OF THE CITIZEN

During the December, 1952, session of the House of Delegates Dr. Russel V. Lee, Section on Military Medicine, introduced a substitute resolution for one originally introduced by Dr. Eugene Hoffman, California. This substitute resolution read as follows:

WHEREAS There exists at the present time a state of confusion as to the extent to which government at various levels is committed to the provision of medical services, therefore be it

Resolved That the American Medical Association through its Board of Trustees at a national level and through its component societies at a state and local level call on local, state and federal governments for a precise definition of the area of governmental responsibility for the provision of personal medical services to various groups of people in our population.

This resolution was referred by the Board to the Council on Medical Service for its consideration and reply.

It is the opinion of the Council that the scope of this resolution is such as to involve three of the Council Committees. These are Committee on Federal Medical Services, Committee on Indigent Medical Care, Committee on Maternal and Child Care.

The Council also calls attention to the fact that President Eisenhower, in his special message to the Congress, recommended the establishment of a Commission whose function would be to study and investigate all the activities in which federal aid is extended to state and local governments. Mr. Eisenhower, in his message, stated "the whole question of federal control of activities to which the federal government contributes must be examined." Since there is every possibility that such a Commission will be established, it is the opinion of the Council that the development of a statement concerning the relation of local, state and federal governments in the provision of medical services to the individual should give consideration to the findings of such a Commission.

Also, in this connection mention is made of a subcommittee of the Ways and Means Committee of the House of Representatives, under the chairmanship of Representative Carl Curtis of Nebraska, which is studying the problem of social security.

The work of the three committees of the Council on Medical Service, namely the Committee on Federal Medical Services, the Committee on Indigent Medical Care, and the Committee on Maternal and Child Care, plus the work of the Commission recommended by the President and the Subcommittee of which Representative Curtis is chairman, may be helpful in carrying out the purposes of this resolution.

The Council has therefore requested its committees to review the resolution as it concerns their activities and to make a report when their studies are completed. In this the Board of Trustees concurs, and will transmit the report to the House of Delegates when it is received.

PROFESSIONAL LIABILITY INSURANCE

Two resolutions on professional liability insurance, adopted by the House of Delegates in December, 1952, were referred to the Council on Medical Service. The Council has submitted a preliminary report to the Board, which outlines not only what studies have been initiated but some of the many and complicated problems involved. Apparently it is the feeling of some members of the House that insurance rates for one state may be increased because of adverse experience in some other state. This understanding may be incorrect since the philosophy of rate making bodies is to the end that premiums are designed to reflect the experience attributable to each class of risk in each rating jurisdiction. The Council on Medical Service has requested, and the Board has granted, permission to undertake further specific studies. The complex nature of many of these problems other than rates are such that a definitive report cannot be made to the House until a later date.

LIAISON COMMITTEE TO ORGANIZATIONS CONCERNED WITH THE CARE OF VETERANS

The following report, which I shall read in its entirety because of its importance, was submitted to the Board of Trustees by the Liaison Committee composed of Drs. Edwin S. Hamilton, Chairman, Walter B. Martin, James R. McVay, Joseph D. McCarthy, Louis M. Orr II, and E. L. Henderson, consultant, appointed to meet with various organizations concerning the provision of medical care and hospitalization for veterans with non service-connected disabilities. The report was approved by the Board and is submitted at this time with the recommendation that it be adopted by the House of Delegates.

REPORT OF LIAISON COMMITTEE TO ORGANIZATIONS CONCERNED WITH THE CARE OF VETERANS

At the December, 1952, session of the House of Delegates of the American Medical Association a report of a Special Committee on Federal Medical Services was considered. In commenting on Part I of this report dealing with medical and hospitalization benefits for veterans with non service-connected disabilities the Reference Committee on Insurance and Medical Service stated in part:

The reference committee believes that the recommendation of the Special Committee that the provision of medical care and hospitalization in Veterans Administration hospitals for the remaining groups of veterans with non service-connected disabilities be discontinued and that the responsibility for the care of such veterans revert to the individual and the community where it rightfully belongs cannot be accomplished without the cooperation of Congress, veterans organizations and the medical profession. Your reference committee after conducting extensive hearings is of the opinion that the only honorable, equitable, and reasonable way to approach this problem is to recommend to the House of Delegates that the American Medical Association, the veterans organizations, the American Dental Association, the American Hospital Association and representatives of the Department of Defense and the Veterans Administration sit down and try to reach reasonable conclusions for appropriate action from agreed upon data rather than take any precipitate action now.

This recommendation was adopted by the House of Delegates on Dec. 4, 1952, and was implemented by the Board of Trustees through the appointment of the subject committee.

In accordance with the recommendation of the House of Delegates the Committee met with representatives of the American Legion, American Hospital Association, American Dental Association, Veterans Administration, Public Health Service, and Department of Defense at the Statler Hotel in Washington, D. C., on March 1, 1953. The meeting, which was organized jointly by this committee and the Medical Liaison Committee of the American Legion, considered the following points:

- (1) Present law and regulations covering eligibility for hospitalization. Processing and administration of Veterans Administration application form 10 P-10.
- (2) Number and categories of hospitals and beds in the Veterans Administration system.
- (3) Classification of hospitalized veterans as to war service, type of disability, etc.
- (4) Record of admissions and discharges.
- (5) Department of Medicine and Surgery, Veterans Administration—residency and Deans Committee Program—research contribution to medicine.

In connection with the first item, Mr. E. E. Odom, Solicitor of the Veterans Administration, presented a summary of the laws providing for the hospitalization of veterans. The material which he discussed was substantially the same as that appearing on pages 3-6 of the printed report of the Special Committee on Federal Medical Services submitted in December, 1952.

Item No. 5 was covered through the presentation of a paper by Dr. J. C. Nunemaker, Chief, Education Division of Research and Education Service, Veterans Administration, outlining the research program of the Veterans Administration.

The principal discussion at the meeting centered around items 2, 3 and 4. The Chairman of the Committee outlined the general position of the American Medical Association with respect to the provision of hospitalization and medical care by the federal government to veterans with non service-connected disabilities and expressed concern over the rapidly expanding federal hospital program. The need for congressional review and probable curtailment was suggested by Dr. Martin.

Dr. H. D. Shapiro, Senior Medical Consultant, Mr. Robert M. McCurdy, Chairman, Medical Liaison Committee, Mr. E. A. Hayes, and Mr. E. V. Cliff were the principal spokesmen for the American Legion in this discussion. In brief, they challenged the accuracy of the figures being cited in connection with medical care for veterans with non service-connected disabilities; they referred to the results of surveys conducted by the American Legion which reflected only a few infractions of existing law; they expressed vigorous opposition to any change in the basic law providing for such benefits and they proposed a further survey of the problem by the groups represented at the meeting.

Representatives of other organizations and agencies in attendance either had no comments to make or stated that they felt the problem should be studied further.

Following the meeting of March 1, 1953, the Committee again reviewed the report of the Special Committee on Federal Medical Services. It has also followed with interest articles appearing in the press and statements by members of the Congress concerning this subject.

As a result of its activities, the Committee is of the opinion that the diverse interests of the groups and organizations represented at the meeting on March 1 make it extremely difficult for the adoption of a uniform approach to the problem.

Although there may have been sound reasons for originally providing care for veterans with non service-connected disabilities, it is the belief of the Committee that subsequent circumstances require a review of that position. In considering this matter, we feel that it is imperative that cognizance be taken of medical manpower problems in general and of the combined effect of the various governmental medical programs on the health of the nation.

The federal government now maintains five major hospital construction and teaching programs. The medical services of the Army, Navy, Air Force, Public Health Service, and Veterans Administration have been gradually expanded by drawing into their spheres a constantly increasing number of civilians who previously were cared for by private civilian medicine. In order to qualify for resident and intern training it is necessary for service hospitals to provide diversified clinical material. As a consequence, there has been increasing pressure to draw into these hospitals the dependents of service personnel and non service-connected general medical and surgical cases from among the veteran population.

As a result, government hospitals are in competition with civilian hospitals not only for personnel but also for patients. Although the federal government, aided by states and local subdivisions, is spending millions of dollars under the Hill-Burton Act in civilian hospital construction it is making it difficult for them to operate at a reasonable cost by diverting patients into hospitals wholly supported by the federal government. This policy is producing a wasteful duplication of hospital facilities and an unwarranted dispersion of health personnel which not only threatens our great voluntary civilian teaching program but also causes a continual increase in the cost of hospital and medical care for persons who must pay their own way.

With the rapid increase (1,000,000 per year) in the size of the veteran population which now exceeds 20,000,000 and the gradual shift in their age distribution to the higher age levels, it is also questionable whether the cost of such a program is a proper charge on the balance of the population. A consideration of the tremendous expansion which will be necessary in the Veterans Administration medical program the next 10 to 25 years demonstrates conclusively the need for reanalysis of the program by the Congress.

It is urged, therefore, that the House of Delegates reconsider its action of Dec 4, 1952, and adopt the recommendation of the Special Committee on Federal Medical Services with respect to the provision of medical care and hospitalization benefits for veterans with non service-connected disabilities. These recommendations, which appear on page 55 of the printed report, provide

'Part One—Your Committee recommends with respect to the provision of medical care and hospitalization benefits for veterans in Veterans Administration and other federal hospitals that new legislation be enacted limiting such care to the following two categories

- (a) Veterans with peacetime or wartime service whose disabilities or diseases are service incurred or aggravated, and
- (b) Within the limits of existing facilities to veterans with wartime service suffering from tuberculosis or psychiatric or neurological disorders of non service-connected origin, who are unable to defray the expenses of necessary hospitalization

"Your Committee recommends that the provision of medical care and hospitalization in Veterans Administration hospitals for the remaining groups of veterans with non service-connected disabilities be discontinued and that the responsibility for the care of such veterans revert to the individual and the community, where it rightfully belongs

'The recommendation of the Committee with respect to the treatment of veterans with tuberculosis and neuropsychiatric disorders of non service origin in federal hospitals is believed necessary at this time because of the inadequacy of local facilities designed to provide treatment for all such cases. It is the feeling of the Committee, however, that the entire question of whether the care of these patients is a local or a federal responsibility must be reanalyzed by the Congress. The rapidly expanding veteran population and the need for facilities for the remainder of our citizens afflicted with these diseases suggests that community facilities must be developed under state or local administration for the benefit of all. Preferential treatment for veterans with these non service-

connected disabilities cannot be continued indefinitely, in view of its detrimental effect on the health and the economy of the entire nation."

Report of Reference Committee on Insurance and Medical Service

Dr Gerald V. Caughlan, Chairman, presented the following report, which was adopted

Supplementary Report of the Board of Trustees on Resolution on Responsibility of the Government in the Medical Care of the Citizen. This is a study to determine the precise definition of the area of governmental responsibility for the provision of personal medical service to various groups of people in our population. This was referred by the Board of Trustees to the Council on Medical Service for consideration and reply. This problem is being studied conjointly with the commission appointed by President Eisenhower and a subcommittee of the Ways and Means Committee of the House of Representatives, under the chairmanship of Carl Curtis of Nebraska, which is studying the problem of social security.

Your reference committee accepts this as a progress report by the Board of Trustees and the Council on Medical Service, and recommends a continuation of the study with a full report when a conclusion is reached.

Supplementary Report of the Board of Trustees on Professional Liability Insurance. This has to do with the difference in rates for insurance in the various states and the Council on Medical Service has requested, and the Board has granted, permission to undertake further studies. This is a progress report and your committee approves continuation of this study.

Supplementary Report of Board of Trustees on Liaison Committee to Organizations Concerned with the Care of Veterans and Resolutions on Treatment of Non-Service-Connected Disabilities on Medical and Hospital Care and Benefits for Veterans, and on Reconsideration of Report of Special Committee on Federal Medical Services, Introduced by Delegates from California, Georgia, New Jersey, New York, Ohio, Oregon and Texas. Your reference committee considered the seven resolutions referred to it having to do with the treatment of non service-connected disabilities by the Veterans Administration, together with the report of the Liaison Committee to Organizations Concerned with the Care of Veterans presented by the Chairman of the Board of Trustees in its supplementary report. The Liaison Committee, composed of Drs Edwin S. Hamilton, Chairman, Walter B. Martin, James R. McVay, Joseph D. McCarthy, Louis M. Orr II, and E. L. Henderson, Consultant, was appointed to meet with various organizations concerning the provision of medical care and hospitalization for veterans with non service-connected disabilities.

After several hours of open hearings and a lengthy executive session your committee has arrived at a decision which will be incorporated in general recommendations rather than in specific comments on the various resolutions and reports submitted. It is the committee's belief and sincere hope that all interested individuals and groups have had a fair and full hearing. Your committee is completely aware of the importance of this problem and the many ramifications which are involved. It has approached its task with an open mind and with the desire to serve the best interests of the public, the veteran population and the medical profession.

Before stating its conclusions your committee would recall to your minds the action taken by the House of Delegates in this matter on Dec 4 of last year. At that time the House had before it a report of a Special Committee of the Board of Trustees appointed to study various aspects of federal medical care. Part One of that report dealt with the subject now under discussion. It was the recommendation of that Special Committee that, except in cases involving tuberculosis or psychiatric or neurological disorders, responsibility for the care of veterans with disabilities or diseases of non service-connected origin should be returned to the individual and to the local community. Although this principle was accepted by the House it was felt that it could not be accomplished, "without the cooperation of Congress, veterans' organizations,

and the medical profession ' The House therefore recommended at that time that representatives of the American Medical Association, the veterans' organizations, the American Dental Association, the American Hospital Association, the Department of Defense and the Veterans Administration meet in an effort to resolve the problems involved

As indicated above one of the items before your reference committee was the report of the Liaison Committee appointed by the Board of Trustees to meet with the organizations mentioned This report discusses a meeting of these groups held in Washington on March 1 of this year and the other activities of the Committee The conclusion of the Liaison Committee is that the original recommendations of the Special Committee on Federal Medical Services, in this regard, should now be adopted by the House of Delegates

It has been alleged by representatives of the American Legion and the Veterans Administration that the original report of the Special Committee on Federal Medical Services is inaccurate and that the Liaison Committee under the chairmanship of Dr Hamilton has failed to consider all of the material presented These representatives have proposed that your reference committee reject the recommendations of these two committees and that a further effort be made to arrive at solutions to the problems involved by joint meetings and through administrative channels In this regard, your committee has not been advised of any substantial inaccuracies in the original Special Committee report and is of the opinion that all material of consequence to the basic question involved has been considered by the Liaison Committee

It appears that the principal confusion in this matter emanates from a failure to understand just what the basic question is It is the belief of your committee that the medical profession must concern itself, not with the numbers of 'chiselers' in Veterans Administration hospitals nor with the efficacy of the Veterans Administration in the administration of enabling legislation, but rather with the broad question of whether such legislation is sound, whether the federal government should continue to engage in a gigantic medical care program in competition with private medical institutions and whether the ever increasing cost of such a program is a proper burden to impose on the taxpayers of the country A consideration of this problem must of course be predicated upon a concern for the health of the entire population and not just a particular segment Starting from this premise and with sympathetic concern for all interests involved, it is the considered opinion of your reference committee that the logic and conclusions of the Special Committee on Federal Medical Services submitted last December as reiterated and implemented by the report of the Liaison Committee should be adopted by the House of Delegates Without restating the statistical data or the reasoning set out in these two documents, your committee would like to repeat their recommendations, which provide

'Part One—Your Committee recommends with respect to the provision of medical care and hospitalization benefits for veterans in Veterans Administration and other federal hospitals that new legislation be enacted limiting such care to the following two categories

- (a) Veterans with peacetime or wartime service whose disabilities or diseases are service incurred or aggravated, and
- (b) Within the limits of existing facilities to veterans with wartime service suffering from tuberculosis or psychiatric or neurological disorders of non service-connected origin, who are unable to defray the expenses of necessary hospitalization

"Your Committee recommends that the provision of medical care and hospitalization in Veterans Administration hospitals for the remaining groups of veterans with non service-connected disabilities be discontinued and that the responsibility for the care of such veterans revert to the individual and the community, where it rightfully belongs

'The recommendation of the Committee with respect to the treatment of veterans with tuberculosis and neuropsychiatric

disorders of non service origin in federal hospitals is believed necessary at this time because of the inadequacy of local facilities designed to provide treatment for all such cases It is the feeling of the Committee, however, that the entire question of whether the care of these patients is a local or a federal responsibility must be reanalyzed by the Congress The rapidly expanding veteran population and the need for facilities for the remainder of our citizens afflicted with these diseases suggests that community facilities must be developed under state or local administration for the benefit of all Preferential treatment for veterans with these non service connected disabilities cannot be continued indefinitely, in view of its detrimental effect on the health and the economy of the entire nation "

In conclusion, your committee would like to stress the fact that these recommendations do not suggest any limitation or impairment of the hospitalization or medical care now available to veterans who have become physically handicapped as a result of military service Your committee is in complete accord with that program

Your committee also recommends most earnestly that all of the facilities of the American Medical Association and of its constituent state and component county societies be employed immediately to disseminate background information and accurate statistical data in this regard Every effort should be made to inform the profession and the public concerning the nature of the problem, the position of the American Medical Association and the reasons on which that position is predicated

REPORT OF THE COMMITTEE FOR THE STUDY OF RELATIONS BETWEEN OSTEOPATHY AND MEDICINE

The Board of Trustees received the report of the Committee for the Study of the Relations Between Osteopathy and Medicine, composed of Drs John W Cline, Chairman, E Vincent Askey, F J L Blasingame, Edwin S Hamilton, and Arch Walls The Board wishes to commend the Committee on its comprehensive study of the historical background and its thorough consideration of the data available from a variety of sources In accordance with the recommendation of the House of Delegates, adopted at its meeting in December, 1952, the Board of Trustees submits the report of the Committee at this time I should like the permission of the Speaker to call on Dr John W Cline, Chairman of the Committee, to read the report, after which I will state the recommendations of the Board of Trustees

Dr John W Cline, Chairman, presented the following report

The Committee—In 1951, the President of the Association reported to the Board of Trustees that the relations between medicine and osteopathy presented widespread problems involving a majority of the states to some degree He had believed previously that these problems were localized to certain areas but found in the course of visiting many states that this was not the case

The Board of Trustees appointed a committee to inquire into the matter and to confer with representatives of the osteopathic profession A number of informal meetings and one formal meeting were held The latter was attended by the ranking officers of the American Osteopathic Association

In his remarks to the House of Delegates in June 1952, the retiring President called this situation to the attention of the House of Delegates The representatives of the American Osteopathic Association had informed the committee of the American Medical Association that the curriculums of the colleges of osteopathy consisted mainly of courses in medicine and surgery and that the quality of instruction in these colleges could be improved if more doctors of medicine were willing to teach in these colleges The President further raised the question as to the validity of the classification of modern osteopathy as 'cultist' healing

The reference committee considering this report recommended and the House directed that a committee be appointed by the Board of Trustees to confer further with representa-

tives of the osteopathic profession when and if requested. The Board appointed a committee consisting of Drs E Vincent Askey, F J L. Blasingame, Edwin S Hamilton, Arch Walls, and John W Cline. Due to additional matters coming before the Board of Trustees at the Clinical Session in December, 1952, the Board appointed another Committee for the study of the Relations Between Osteopathy and Medicine. This committee was composed of the same persons and was directed to investigate these relationships and to report to the House in June, 1953.

The committee has gathered and reviewed considerable data derived from a variety of sources, including questionnaires sent to every state medical association and county medical society and to persons who receive the Secretary's Letter. The questionnaires were designed by the committee but were submitted to the Secretary and Assistant Secretary of the Association, the Director of Public Relations, the Secretary of the Council on Medical Service, the Director of the Bureau of Medical Economic Research, and the attorney of the Association for review, criticism of the content and phraseology, and additions and deletions. Others also were consulted. These conferences resulted in numerous changes in the original draft. The final questionnaires were, therefore, the product of many minds. An effort was made to phrase the questions simply but to make them adequate to provide the necessary information. A conscious effort was made to avoid "weighted" questions and terminology. The questionnaires were returned to and analyzed by the Bureau of Medical Economic Research. The associations of 36 states and that of the District of Columbia responded in time to be included in this study. Twelve did not reply. The questionnaires directed to county societies and individuals were less extensive but covered much the same material. The return was not as large as had been expected, but the pattern of replies followed that of the state associations fairly closely, although individual opinions often were at variance. The similarity of replies was sufficient to warrant the conclusion that the replies of the state associations represented majority opinion within the states. The following state medical associations replied: Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Georgia, Illinois, Iowa, Kansas, Louisiana, Maine, Maryland, Massachusetts, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Jersey, New Mexico, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming, and the District of Columbia.

In addition, a letter propounding certain questions was sent to the deans of the schools of osteopathy. One responded directly. A composite reply was furnished to the committee by the Conference Committee of the American Osteopathic Association at a meeting of the two groups in Chicago, May 15, 1953. The replies were placed in writing subsequently and forwarded to the Chairman. The committee renders this report.

Historical—Osteopathy was begun in 1874 by Dr Andrew Taylor Still, a practicing physician. He promulgated a concept that all "disease is the result of anatomical abnormalities followed by physiological discord," and that the "anatomical abnormalities" consisted of lesions of bones, joints, and their supporting structures. These, in turn, induced disturbances of nerve and vessel function that produced pathological conditions in other tissues. He inveighed against drugs, serums, vaccination, and "electricity, x radiance, hydrotherapy or other adjuncts." He believed that "Osteopathy is an independent system and can be applied to all conditions of disease," and that surgery should be advocated only "as a last resort." He said, "We believe that our therapeutic house is just large enough for osteopathy and that when other methods are brought in just that much of osteopathy must move out."

The original concept of Dr Still could be classified only as "cultist" healing. The only justification advanced in defense of it is that drug therapy of that day with few exceptions was not specific or very effective. The earlier schools followed the dictums of Dr Still. Some advocates adhered to them with religious fervor and became extremely bitter toward orthodox medicine as a result of the legitimate criticism made of the then osteopathic concept.

Since that time a great evolutionary change has taken place in osteopathy. It is difficult to trace the chronological course of this development and to document it with relation to time. Apparently no historical account exists. We were unable to find one and the American Osteopathic Association could not furnish us with a reference to one. A comparison of osteopathy at the turn of the century and at the present time, however, makes it obvious that such an evolution took place. In its effort to develop an orderly account of this change, the committee consulted books, periodicals, and numerous persons. It then propounded questions to the deans of osteopathic schools and the representatives of the American Osteopathic Association. In addition, the committee investigated the curriculum development and the legal requirements for licensure of osteopaths at various stages. Certain facts that establish a partial history were developed.

As pointed out previously, the early schools adhered to the drugless and "cultist" theories of Dr Still. Most of the six existing schools apparently began as institutions following these teachings. Some may have begun on a broader base, but all largely followed his theories. At some time all departed from this dogma and began to turn toward the pattern of medical schools. The exact time of the departure of each is difficult to ascertain.

The composite answer of the schools of osteopathy states that some aspects of drug therapy always were included in their teaching, but these were limited in extent. All schools instituted informal teaching of pharmacology prior to the listing of formal courses in printed announcements. We believe that pharmacology was included because the inadequacy of drugless therapy was recognized but that formal listing of such courses was delayed out of deference to the opposition of the so-called "old religionists" in osteopathy. One school gave informal instruction in drug therapy prior to 1913, and in that year offered formal courses in pharmacology and materia medica. Other schools followed this pattern, and in 1940 the last school made announcement of a formal course in pharmacology after having taught the subject for years without according it an official listing. As nearly as we can ascertain, pharmacology has been taught in one school for more than 40 years and in most, if not all schools, for more than 25 years. It has been taught on a formal and announced basis in all schools for periods varying between 13 and 40 years.

Another approach to documentation of the evolution of osteopathy is found in the history of licensure. The current extent of licenses will be discussed later. Differing types of examining boards exist. Some consist solely of doctors of medicine, some solely of doctors of osteopathy, and some are composed of both. In the last type, doctors of medicine usually, and probably always, predominate in numbers. In 1913, and perhaps as early as 1900, composite boards granted full licenses to practice medicine and surgery to osteopathic graduates. Since that time, doctors of osteopathy have become eligible to full licensure in a majority of states. In 1922, one state established by law entrance requirements and curriculum requirements identical with those required of medical schools, which had to be fulfilled prior to admission to examination for full licensure by the osteopathic examining board. The osteopathic board in this state is said to have maintained high standards since that date. One school qualified to meet its requirements in 1922, two by 1940, and the remaining three by 1947.

The Osteopathic Concept—The original ideas of Dr Still were mentioned earlier. As the evolution of osteopathy has taken place, the concept of osteopathy has changed. Concise definitions of modern osteopathy and the current osteopathic concept are difficult to find. One expression of the osteopathic concept is found in the following quotation: "Stated simply, the principles are (1) The normal body contains within itself the mechanisms of defense and repair in injuries resulting from trauma, infections and other toxic agents, (2) the body is a unit and abnormal structure or function in one part exerts abnormal influence in other parts, (3) the body can function best in defense and repair when it is in correct structural arrangements."

A modification of the foregoing is found in another source.

The statement, 'The body contains within itself the power to cure all of its curable ills,' is subject to certain qualifications, which must be applied to the patient under consideration. Some of these are: 1 The body must be in the best mechanical adjustment possible. 2 The body must have the most adequate circulation possible. 3 The body must have available, from food or medication, the required chemicals for proper function. 4 The body must have a physiological reserve to affect the necessary compromise with its environment. 5 The body must be relieved of all impediments to proper function. 6 The body must be relieved of all sociopsychological impediments which must be recognized and dealt with as effectively as possible." In addition, one encounters statements such as "Contrary to erroneous opinions of persons not acquainted with the basic principles of osteopathy, it has never been a drugless school of practice. Surgery and the use of drugs always have been included within its practice."

The committee reviewed a series of six articles relative to the osteopathic concept appearing in "The Forum of Osteopathy," a publication of the American Osteopathic Association, from March to August, 1952. These articles were based on statements by many individual osteopathic physicians, with editorial comment by the author of the compilation. The statements quoted are often somewhat contradictory and the author comments on the validity of the differing points of view expressed in them. Predominant opinion seems to stress that osteopathy encompasses the full field of medicine and that its present and future development depends on an attitude of acceptance of new theories and new methods of diagnosis and treatment of disease as the value of these methods is demonstrated.

Discussions with leaders of the osteopathic profession and teachers in their schools reflect some difference in points of view, but their opinions are almost unanimous that the only basic difference between osteopathy and medicine at the present time is the degree of emphasis placed on manipulative therapy. It is stated by some that manipulative therapy has not been subjected to critical evaluation and that thorough investigation of its value by trained clinical research workers in our medical institutions would be welcomed. There is an inference that such evaluation might exert great influence on the future of osteopathy.

As will be shown by an analysis of the curriculums of the colleges of osteopathy, medicine, as we understand the term, in its various branches probably occupies more than 90% of the instructional hours. The total number of clock hours of instruction in osteopathic schools is on the average about 25% greater than the corresponding time devoted to instruction in medical schools. The increased number of hours in the opinion of medical educators, is a disadvantage rather than an advantage, but demonstrates that the number of clock hours devoted to teaching of medicine in osteopathic schools is at least as great as that in medical schools.

Colleges of Osteopathy—There are six osteopathic schools currently operating in the United States. These are (1) Kirksville College of Osteopathy and Surgery, Kirksville, Mo., established in 1892, (2) College of Osteopathic Physicians and Surgeons, Los Angeles, 1896, (3) Philadelphia College of Osteopathy, Philadelphia, 1898, (4) Des Moines Still College of Osteopathy and Surgery, Des Moines, Iowa, 1898, (5) Chicago College of Osteopathy, Chicago, 1900, and (6) Kansas City College of Osteopathy and Surgery, Kansas City, Mo., 1916.

Some of the present schools have resulted from mergers of other schools and some have undergone changes in name similar to the evolution of some of our schools of medicine. The dates indicate the founding of the original school in continuous operation.

The organizational structure of the colleges of osteopathy is essentially identical. All are incorporated as nonprofit educational institutions governed by boards of trustees that appoint the administrative officers and the faculties. None are operated for profit. None are a part of or associated with universities or other colleges. None are tax supported. Finances are derived mainly from contributions by alumni and tuition fees.

A well-organized and vigorous campaign begun by the American Osteopathic Association in 1943 has collected over five million dollars. Some contributions come from private philanthropy. The United States Public Health Service makes grants to all schools for such projects as education in cancer and heart disease. The Navy and the Public Health Service have made some grants for research. One school derives minor support from the state for venereal disease and indigent care.

Faculties—Of 487 faculty members listed in the six colleges, 32 are recorded as having degrees of A.B. or B.S. with out additional degrees, 273 have the degree of D.O. only, 96 have both A.B. or B.S. and D.O. degrees, 13 hold M.A. or M.S. degrees only, 36 are listed as having M.A. or M.S. and D.O. degrees, 26 have Ph.D. standing, 10 are listed as having an M.D. degree, and 6 have the degree of D.D.S. Reports from the osteopathic colleges show that there are 15 doctors of medicine teaching in five schools at the present time. In some catalogs only the degree is listed. In others, however, the institution conferring it also is listed and almost all of the A.B., B.S., M.A., and M.S., and Ph.D. degrees so listed were conferred by well recognized educational institutions. Some of the M.D. degrees were granted by currently approved schools of medicine. Others were not. The great majority of the faculty members holding bachelor's and master's degrees alone and those with Ph.D. and M.D. degrees teach in the fields of basic science. Some with additional D.O. degrees teach in clinical fields.

Admission Requirements and Students—All schools require three years of preprofessional study of a grade leading to a baccalaureate degree in an acceptable university or college and the curriculum content of preosteopathic course requirements is the same as that for admission to schools of medicine. Analysis of data from all schools shows that 49% to 78% of the students enrolled in present classes hold the degree of A.B. or B.S. Degrees of M.A. or M.S. are not uncommon and an occasional Ph.D. is listed. Sixty-four per cent of all current students hold baccalaureate or higher degrees. The most recent classes show substantially higher figures. Many students have matriculated from teachers' or junior colleges but many from outstanding colleges and universities, some of which have medical departments. Among these Michigan, Missouri, Illinois, Minnesota, Wisconsin, Iowa, Kansas, Pittsburgh, Ohio State, Indiana, New York University, Washington University, the University of Washington and Northwestern contribute substantial numbers and Harvard, Yale, Cornell, and Columbia are represented. This proportion is progressively increasing and that from lesser institutions is decreasing. Some schools select students partially on the basis of aptitude tests.

Classes—The classes vary from 60 to almost 100 students each, depending on the school. The enrollments of the schools in 1952 varied from 240 to 368 and total 1921 students. Every state was represented. Enrollments reflected the geographical location of the school to some degree but the larger states and those with larger numbers of doctors of osteopathy and wider scope of licensure furnished the bulk of the students. The largest numbers had residence in California, Michigan, Pennsylvania, Missouri, Ohio, Texas, Illinois, New York, Iowa, New Jersey, Oklahoma, and Florida. A number of students came from foreign countries.

Curriculum—Review of the catalogs shows that the portion of the curriculum devoted to teaching of osteopathic theory and technique varies on a mathematical basis and is from 4 to 14% of the total number of clock hours. A breakdown of the courses, however, shows instruction in history taking, physical examinations, physical therapy, and rehabilitation sometimes included under osteopathic titles. On the other hand, osteopathic instruction is integrated with other clinical teaching. It is difficult to determine the exact number of hours devoted to osteopathic teaching in contradistinction to basic sciences and medicine in its various fields and the proportion of these hours to the total program. It is estimated that an average of more than 90% and perhaps 95% of the instructional hours are devoted to basic sciences, the fields of medicine, surgery, and obstetrics. These courses of instruction and the distribution of hours correspond closely to those of medical schools.

All colleges of osteopathy require four year courses. Most operate upon a semester system, but the quarter plan exists in some. The total clock hours vary from 5,044 to 6,526 in different schools and average 5,756 for all schools. The distribution of hours devoted to didactic, clinical, and laboratory instruction varies. The same is true of medical schools, but the impression is gained that somewhat greater emphasis is placed on didactic teaching in schools of osteopathy. In some schools, however, introduction to clinical subjects occurs early and is fairly extensive.

Quality of Instruction—The committee had no entirely satisfactory method of evaluating the quality of instruction in clinical subjects. Results of examinations in basic sciences in the states requiring such examinations prior to admission to practice furnish a reasonable basis on which to determine the quality of instruction in pre-clinical subjects. Twenty-one licensing jurisdictions require such examinations. In 1952, 3,263 doctors of medicine or medical students and 276 osteopaths or osteopathic students took basic science examinations. The ratio of osteopathic to medical candidates was about that of enrollments in schools of osteopathy to schools of medicine. Eighty-eight per cent of the medical and 84.5% of the osteopathic candidates passed the 1952 basic science examinations. This is in marked contrast to 1942, when 85.6% of medical and 55.4% of osteopathic candidates passed. In 10 years medical candidates showed 2.4% improvement in passing basic science examinations and that for osteopathic candidates was 29.1%.

The committee had one confidential communication bearing on the quality of instruction in colleges of osteopathy as compared with schools of medicine. While this was an indirect approach and incomplete answer to the question, it covered both types of schools on a wide basis. At the end of four years of schooling the average medical student had acquired more medical knowledge than had the corresponding osteopathic student. The margin was definite, but no mechanism existed to determine its extent. It must be recognized that there is variability in both classifications of school. This same source states that the performance of a considerable number of students in the best osteopathic schools is now superior to that of the students in some medical schools. The committee believes the quality of instruction in medical schools to be definitely superior to that of osteopathic schools. There is evidence that education in osteopathic schools is improving, but improvement is impeded by a lack of trained teaching personnel. This seems to be particularly true in the clinical fields.

Graduate Training—The American Osteopathic Association approves hospitals for intern and residency training. Seventy-six hospitals are approved for intern and 38 for residency training. The committee is not in a position to evaluate this training.

Number and Distribution of Osteopathic Physicians—There were 11,827 osteopathic physicians registered in 1952. Of this total, 207 were in Canada and foreign countries and 14 were in the service. There were 145 out of practice. There were 11,461 in practice in 48 states, the District of Columbia, Hawaii, and Alaska.

According to total number of licenses, osteopathic physicians were distributed principally in the following states:

California	1976	Iowa	472	Florida	278
Missouri	1120	New York	472	Kansas	227
Pennsylvania	1081	Illinois	416	Maine	215
Michigan	1062	New Jersey	358	Colorado	182
Ohio	629	Oklahoma	348	Wisconsin	160
Texas	531	Massachusetts	291	Washington	158

This, however, does not give a true picture of distribution with reference to population. Certain small population and sparsely settled states show greater numbers in proportion. Among these are Arizona with 96, New Mexico with 106, and West Virginia with 129. Some states with large populations show relatively small numbers of osteopathic physicians. Connecticut has 76 and Minnesota 92, and most of the southern states very few. Distribution in general tends to bear some relationship to population, geographical location, and particularly to the scope of state licensure.

Within the individual states distribution tends to follow population and trading centers much after the pattern of that of doctors of medicine. There are, however, many exceptions. As an example, certain areas in Missouri with low ratios of doctors of medicine to population show comparatively high ratios of osteopaths. The same is true of northern Maine and the upper peninsula of Michigan. There are widely distributed towns and rural areas in many states in which the only care of illness immediately available is by osteopaths or where they outnumber doctors of medicine.

Volume of Care Rendered by Osteopathic Physicians—There is no clear method of determination of the proportion of medical care rendered by members of the osteopathic profession. It is estimated that about 175,000 doctors of medicine and 11,400 doctors of osteopathy are in active practice in the United States. With this as the sole basis of computation, approximately 6% of the medical care of our people is rendered by osteopathic physicians.

Scope of Licensure and Administration—In some states the scope of licensure is clear. In others it is not. Courts in various states have interpreted identically worded statutes differently. In some the scope of license has not been adjudicated. This confusion is reflected in the state association, county society, and individual replies to the questionnaires.

The June, 1952, digest of state laws published by the American Osteopathic Association states that the graduates of the six schools of osteopathy are eligible to full license to practice medicine and surgery in the following states and the District of Columbia: Arizona, California, Colorado, Connecticut, Delaware, Florida, Hawaii, Indiana, Iowa, Kentucky, Maine, Massachusetts, Michigan, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, and Wyoming.

Licenses permit limited use of drugs but no major surgery in Arkansas, Georgia, Idaho, Louisiana, Minnesota, and North Dakota. Licenses permit only manipulative therapy in Alabama, Illinois, Kansas, Maryland, Mississippi, Montana, North Carolina, and South Carolina.

There is room for legal argument concerning the exact meaning of the law in certain instances, but this list corresponds fairly closely with the 1949 survey of the Michigan State Medical Society and with the informal opinion of the attorney of the American Medical Association. For the purpose of general consideration, it can be accepted as substantially accurate.

Most jurisdictions that grant unlimited licenses do so on the basis of the original license without additional requirements. In a number it depends on an examination identical with that for medical licensure and given by the medical licensing body. In some the date of graduation is a determining factor. In some states additional training and/or additional examination is required. In some states only one type of license is granted. In others limited and unlimited licenses both exist. In the country as a whole, the numbers and proportions of limited licenses are diminishing rapidly.

The educational standards of all osteopathic schools are now and for some time past have been such that their graduates are eligible to unlimited licensure in all states granting such licenses. Doctors of osteopathy tend to settle in areas in which unlimited licenses are granted. The scope of licensure in general has been gradually extended, and we are informed that the legislatures of several states have measures designed for this purpose under consideration at present.

The Public and Osteopathy—Eighteen state associations indicate that patients do not readily distinguish between doctors of osteopathy and doctors of medicine. Two were in doubt and two do not answer. Fifteen believe they do so. Ten associations believe public use of osteopaths is increasing, 20 that it is remaining static, and 4 that it is decreasing. In 20 states osteopaths participate in voluntary health insurance programs. In 25 they render care to injured workmen under industrial accident laws. They also serve in the Veterans Administration. There is permissive legislation allowing them to

serve in the armed services and the United States Public Health Service, but, as far as we know, none have been accepted

Postgraduate Education—In 19 states no opportunity is provided for osteopaths to obtain instruction in courses sponsored by state medical associations, county medical societies, universities, or hospitals. In 16, no answer is provided to the question. In two states osteopaths have access to courses given by state associations and county societies and by health departments in five

Relationship Between Doctors of Medicine and Osteopaths—It is considered ethical to accept patients referred by osteopaths in 23 states and unethical in 11. Consultation with osteopaths is considered ethical in 8 states and unethical in 24. Joint care of a patient is considered ethical in 8 states and unethical in 25

Twenty nine state associations believe the quality of instruction in osteopathic schools would be improved if doctors of medicine freely participated in teaching in them. Eight do not reply. Twenty nine believe the level of osteopathic practice would be improved if postgraduate courses were more readily available to osteopaths. Twenty two believe the over-all care of illness in their states would be improved if doctors of medicine freely participated in undergraduate and postgraduate osteopathic education. Three believe there would be no change. Three believe it would be lowered. Nine do not reply

If ethical restrictions of association between doctors of medicine and osteopaths were removed, 18 state associations believe the over-all care of illness would be improved. Seven believe there would be no change. Seven believe it would be lowered. Five do not reply

Fourteen state associations classify modern osteopathy as practiced in their states as "cultist healing." Twenty three considered it not to be "cultist healing" according to the definition of the Principles of Medical Ethics of the American Medical Association

Fifteen favor removal of ethical restrictions on voluntary association between doctors of medicine and doctors of osteopathy. Sixteen oppose such action. Five do not reply and one is noncommittal

SUMMARY

1 According to published statements, and in certain states by law, the requirements for admission to schools of osteopathy are the same as those for schools of medicine. In one school 78% of the students hold A B or B S degrees. The average for all six schools shows 64% possess baccalaureate or higher degrees. Only a small number of these degrees were achieved after admission to osteopathic school

2 The curriculums of osteopathic schools contain the same subjects taught in schools of medicine. Minor portions of the curriculums are devoted to osteopathic courses and manipulative therapy

3 The standard of education in osteopathic schools has improved materially in recent years. As far as this applies to basic sciences, the fact is demonstrated by the results of basic science examinations. It is far more difficult to evaluate the education in clinical subjects. Such information as is available indicates some but less progress in this field

4 The opportunities for doctors of osteopathy to obtain postgraduate training are meager

5 The state medical associations, the county societies, and individual physicians predominantly believe that the level of osteopathic education, the standards of practice, and the over-all care of the sick would be improved if doctors of medicine were able freely to participate in undergraduate and postgraduate education of osteopaths

6 This belief is shared by leading osteopaths and osteopathic educators

7 Doctors of osteopathy render medical and surgical care to a large but undetermined number of persons in this country. There is no way of ascertaining the exact number, but millions of patients are involved

8 The scope of the osteopathic license varies from limitation to manipulative therapy in 8 states to extensive or complete practice of medicine in 35 states. The trend is toward the extension of the scope of licensure

9 Majority opinion of medical associations and individual physicians indicates that the quality of medicine practiced by osteopaths is variable, and it probably differs in different states

10 Medical opinions of osteopathy naturally vary. It is scarcely possible to compare osteopathy in such states as Maryland and Wisconsin. In the former osteopathy is limited to manipulative therapy and in the latter the state board of medical examiners recognizes the six schools of osteopathy as approved schools of medicine. It is likewise impossible to compare osteopathy in Alabama, which has four osteopaths, to that in California, with almost 2000. Similar difficulties are encountered even in such adjacent states as Iowa and Illinois, Missouri and Kansas, and Texas and Arkansas

11 In 20 of the 37 states replying to the questionnaire doctors of osteopathy participate in voluntary health insurance plans, and in 18 of these in Blue Shield Plans. A few states specify that the basis of participation is not quite the same as that for doctors of medicine. In 1952, 6 of the highest 25 individual payments by Michigan Medical Service were made to osteopaths. Osteopathic hospitals and in some instances osteopaths are compensated by Blue Cross Plans

12 In 25 of the states reporting, doctors of osteopathy render care to injured workmen under the industrial accident laws

13 Twenty three of the 37 states replying consider it ethical for doctors of medicine to accept referred patients from osteopaths. Eight states hold it ethical to consult with and participate with osteopaths in the care of patients. In most states some physicians consider all three categories of association to be ethical

14 On the whole the states in which state association and individual opinions of osteopathy are highest are the states in which osteopathic licenses are unlimited or extensive. Where the scope of licensure is sharply limited or the osteopaths were few in number the opinions are less favorable

15 In many widely distributed towns and villages all or a large part of the immediately available care of illness is furnished by osteopaths

16 Public acceptance of osteopathy is extensive. Ten state associations report the use of services of osteopaths to be increasing, 20 that it is remaining static, and only 4 that it is decreasing. A large number of persons, through necessity, fail to distinguish between medicine and osteopathy or by choice receive their care of illness from osteopaths. Osteopaths serve in the Veterans Administration

17 Twenty three state associations classify modern osteopathy as practiced in their states as not being "cultist healing" according to the definition of our Principles of Medical Ethics. Fourteen consider it to be "cultist healing"

18 Fifteen state associations favor removal of all ethical restrictions on voluntary association between doctors of medicine and doctors of osteopathy. Sixteen do not

19 There is difference of opinion among osteopathic physicians as to the relative importance of and the place that manipulative therapy occupies in the treatment of disease. Some hold its position to be important and others to be minor. An increasing number, particularly of more recent graduates, disavow it

20 It is the opinion of the committee that the official viewpoint of the representatives of the American Osteopathic Association is that osteopathy includes the entire field of medicine and surgery but integrates manipulation of musculoskeletal structures with medical and surgical methods of therapy. No diagnostic or therapeutic procedure used in medicine or surgery is excluded

Osteopathy has undergone a process of evolution that has brought it to a point of such similarity to medicine that no marked fundamental differences exist between medicine and osteopathy. The entrance requirements for schools of osteopathy and schools of medicine are identical. The curriculums have the same content, except for the inclusion of osteopathic theory, diagnosis, and treatment. The period of instruction in both instances is four years. The clock hours devoted to teaching basic sciences, medicine, and surgery are as great in schools of osteopathy. The level of instruction in basic sciences is

demonstrated by the record of osteopathic candidates in examinations in these subjects. Indirect and incomplete methods of evaluation of the quality of instruction in clinical subjects, insofar as they apply, indicate progressive improvement in this field.

There are unquestionably doctors of osteopathy still in practice who explain disease on antiquated osteopathic theories and who rely solely on manipulative methods of therapy, but their number is constantly decreasing. It might be argued on this basis that osteopathy still remains 'cultist healing'.

Instruction in all fields of medicine and surgery has been given in some osteopathic schools for 40 years and formally in all osteopathic schools since 1940. Osteopathic teaching is integrated with these courses to some degree. It might be argued on this basis that "cultist" aspects remain. Nevertheless, the committee, after careful study and thoughtful consideration, is of the opinion that the teaching in osteopathic schools at the present time, and for some years past, does not constitute 'cultist healing' as defined in our Principles of Medical Ethics and that this stigma should be removed.

The committee believes that the level of osteopathic education and hence osteopathic practice would be raised if more doctors of medicine taught in schools of osteopathy and in postgraduate courses. This point of view is shared by a large majority of state medical associations. The only method by which this can be done is to eliminate the stigma of "cultism." As long as this stigma remains, most doctors of medicine will be reluctant to participate in the education of osteopathic students and in providing postgraduate education.

Doctors of osteopathy render medical care to millions of patients. The objectives of the American Medical Association and its responsibilities are to improve the health and medical care of the American people. The committee is of the opinion that these purposes would be served by making it possible for schools of osteopathy to draw on the services of doctors of medicine as teachers. We should assist improvement in the education of osteopathic physicians.

The committee believes that the American Medical Association should encourage state medical associations to aid in the improvement of osteopathic postgraduate education where the state associations find this desirable and feasible.

In view of the variation in the scope of osteopathic licensure by the states, probable variation in the level of osteopathic practice in different states, widely divergent opinions, and differing local conditions, the committee is of the opinion that any national policy governing the individual relationships of doctors of medicine to osteopaths would not apply equally to all states. In keeping with the autonomous nature of state associations and democratic principles, the responsibility for regulation of these relationships should be assumed by the several state medical associations.

The committee is of the opinion that the meetings it has held with the conference committee of the American Osteopathic Association have been productive of greater understanding between the two professions and a friendly approach to mutual problems. It would be wise to continue this type of liaison in the future. The committee also is of the opinion that it would be helpful for similar committees to be created on the state level where state associations find it desirable. Much public wrangling and acrimonious conflict might thereby be avoided.

In the past much publicity has been given to the prospect of amalgamation of the medical and osteopathic professions. While this may be an ultimate eventuality, there is no indication that it would be desirable or possible in the near future. Many years will elapse before differences of opinion and prejudices will be sufficiently resolved to make such a step possible.

RECOMMENDATIONS

The committee makes the following recommendations:

(1) That the House of Delegates declare so little of the original concept of osteopathy remains that it does not classify medicine as currently taught in schools of osteopathy as the teaching of 'cultist' healing.

(2) That the House of Delegates state that pursuant to the objectives and responsibilities of the American Medical Association,

which are to improve the health and medical care of the American people, it is the policy of the Association to encourage improvement in undergraduate and postgraduate education of doctors of osteopathy.

(3) That the House of Delegates declare that the relationship of doctors of medicine to doctors of osteopathy is a matter for determination by the state medical associations of the several states, and that the state associations be requested to accept this responsibility.

(4) That the Committee for the Study of Relations Between Osteopathy and Medicine or a similar committee be established as a continuing body.

Respectfully submitted,
JOHN W CLINE, Chairman
E VINCENT ASKEY
F J L BLASINGAME
EDWIN S HAMILTON
ARCH WALLS

The Board of Trustees makes the following recommendations with reference to the report just read. Because of the length of the report and the controversial nature of the subject, the Board feels that the House should have adequate time for its study and that the state associations should have opportunity to express their opinions. Therefore, it is recommended that the committee be continued but that action on the report be deferred until the June, 1954, Session.

It is suggested that at that time the House be prepared to answer the following questions:

- 1 Should modern osteopathy be classified as cultist healing?
- 2 Since the objectives of the American Medical Association include improvement in undergraduate and postgraduate education should doctors of medicine teach in osteopathic schools?
- 3 Should the relationship of doctors of medicine to doctors of osteopathy be a matter for determination by the several state associations?

Majority Report of Reference Committee on Miscellaneous Business

Dr. Walter P. Anderton, Chairman, presented the following majority report, signed by himself and Drs. Frank H. Krusen and Charles H. Phifer, which, after presentation of a minority report and extended discussion, was adopted.

We, the majority of the Reference Committee on Miscellaneous Business, recommend the adoption of the Supplementary Report of the Board of Trustees on the report of the Committee for the Study of the Relations Between Osteopathy and Medicine. The resolution introduced by Dr. J. Lafe Ludwig for the California Medical Association on the subject of osteopathy was considered with the supplementary report of the Board of Trustees on osteopathy, and it is our opinion that this resolution is covered by the supplementary report of the Board. A minority report from your reference committee will be presented.

It is our opinion that the committee of the Board of Trustees has made a great contribution in its Study of the Relations Between Osteopathy and Medicine. It is a splendid and constructive accomplishment, and requires complete knowledge, time, and very careful consideration in order that we may make no mistake in our recommendations and deliberations concerning it.

There are many differences in the types of licensure granted to osteopaths in different states. We would call to your very careful consideration the special committee's recommendations.

- 1 That the House of Delegates declare so little of the original concept of osteopathy remains that it does not classify medicine as currently taught in schools of osteopathy as the teaching of 'cultist' healing.
- 2 That the House of Delegates state that pursuant to the objectives and responsibilities of the American Medical Association which are to improve the health and medical care of the American people it is the policy of the Association to encourage improvement in undergraduate and postgraduate education of doctors of osteopathy.
- 3 That the House of Delegates declare that the relationship of doctors of medicine to doctors of osteopathy is a matter for determination by the state medical associations of the several states and that the state associations be requested to accept this responsibility.
- 4 That the Committee for the Study of Relations between osteopathy and medicine or a similar committee be established as a continuing body.

The Board of Trustees also recommends that action on the report be deferred until the June, 1954, session. It is suggested that at that time the House be prepared to answer the following questions:

- 1 Should modern osteopathy be classified as 'cultist' healing?
- 2 Since the objectives of the American Medical Association include improvement in undergraduate and postgraduate education, should doctors of medicine teach in osteopathic schools?
- 3 Should the relationship of doctors of medicine to doctors of osteopathy be a matter for determination by the several state associations?

It is our present belief that these recommendations are sound, constructive, and demand from the House of Delegates the usual evaluation and support it likes to give to reports of our Trustees. We cannot see any cause for emergency action. As members of the Reference Committee on Miscellaneous Business, we would like to move the adoption and concurrence with the recommendations of the Supplementary Report of the Board of Trustees on the Study of the Relations Between Osteopathy and Medicine.

Minority Report of Reference Committee on Miscellaneous Business

Dr. Robertson Ward, for himself and Dr. George A. Unfug, presented the following minority report:

This is a Minority Report of the Reference Committee on Miscellaneous Business. May I state that the signers of this minority report are in complete agreement with the remainder of the committee on all issues except that of the Supplementary Report of the Board of Trustees relating to osteopathy. On this we disagree in that we, the minority, recommend immediate adoption of the Report of the Committee for the Study of Relations Between Osteopathy and Medicine.

We of the minority of the Reference Committee on Miscellaneous Business are in complete agreement with the objectives and recommendations of the Committee for the Study of Relations Between Osteopathy and Medicine. We are of the opinion that it furnishes a sound and constructive approach to many perplexing problems. A large number of delegates and members of the Association appeared before your committee. With few exceptions they advocated immediate action and described varied and pressing problems in their states. In our opinion, there was fairly general agreement among those testifying that the action proposed in the report would be of material assistance to them in solving problems which cannot be solved under present conditions.

It was emphasized by some that their states looked to the American Medical Association for realistic leadership, and that, until positive leadership was provided, they would continue to be embarrassed in their efforts to solve their problems. We are of the opinion that such leadership should be provided as promptly as possible.

The purposes of the first and second recommendations of the report are the improvement of the health and medical welfare of the American people by assisting in elevation of educational standards in schools of osteopathy and postgraduate opportunities for doctors of osteopathy. This would result in improvement of the level of practice of medicine by osteopathic physicians to the benefit of large numbers of patients. This is in consonance with the announced objectives of the American Medical Association.

It is obvious from the report and the hearings before your reference committee that various states have widely different circumstances to meet and that no over-all national policy can guide the solution of the differing problems. We are convinced that the objective of the third recommendation in the report is to permit each state to solve its own problems without imposing on such states conditions that would be unfair and unworkable.

The only question between us and the signers of the majority report was one of timing. We believe that this House of Delegates is more conscious of the problems and far better informed than any other group in the profession. The facts as developed by the study presented to the House are clear. We doubt that additional information of importance could be developed in the next year except to corroborate the informa-

tion now available. We believe that there would be a number of important disadvantages in delaying action and that these outweigh any advantage to be gained by delay. In view of our general agreement concerning the recommendations of the report and the objectives to be attained, we recommend that the report of the Committee for the Study of Relations Between Osteopathy and Medicine be approved and its recommendations adopted at this session.

Supplementary Report of Board of Trustees—Continued

The following portions of the supplementary report of the Board of Trustees were not referred to any reference committee, the Speaker declaring that they were "for information only."

RELATIONSHIPS WITH NONPROFESSIONAL GROUPS IN THE HEALTH FIELD

In September, 1952, following the adoption by the House of Delegates of the report of the Reference Committee on Medical Education and Hospitals in June of that year, a joint committee of the Board of Trustees and the Council on Medical Education and Hospitals was appointed to study the whole question of the relationship of American medicine to professional nonmedical groups in the health field. Since that time, the committee has met with representatives of interested organizations and with individual physicians, teachers, and scientists. A preliminary report on these meetings was submitted to the Board of Trustees, but, because of the complex nature of the subject, definite conclusions have not as yet been reached. The Board has, therefore, authorized the committee to continue its study of the matter and has requested a further report for presentation to the House of Delegates in December, 1953.

RESOLUTION ON RELATIONSHIPS BETWEEN PHYSICIANS AND LAY TECHNICAL WORKERS IN AUXILIARY FIELDS OF MEDICINE

The resolution on the establishment of a permanent bureau in the headquarters office to deal with problems arising concerning the relationship between medical practitioners and lay workers in auxiliary fields of medicine, introduced by Dr. Frank H. Krusen at the December, 1952, session of the House of Delegates, was referred to the joint committee of the Board of Trustees and the Council on Medical Education and Hospitals appointed to study closely related problems. A report of progress was received from the above committee, but final action is deferred until after the joint committee has made its final report on the relationship of American medicine to professional nonmedical groups in the health field.

Address of Secretary of Department of Health, Education, and Welfare, Mrs. Oveta Culp Hobby

Dr. Louis H. Bauer, President, introduced Mrs. Oveta Culp Hobby, Secretary of the United States Department of Health, Education, and Welfare, who addressed the House as follows:

My grandmother would have viewed my presence at this assembly with some anxiety, if not with alarm. To her, a visit to the doctor, like the arrival of a telegram, meant a family emergency of the direst consequences. Had she learned that I was to consult some 200 physicians face to face, she would have concluded that my case was grave, if not critical. But I share the good health of millions of Americans whose well-being is both the result of splendid medical care under a private voluntary medical system and the result of the increasing resources for prevention and treatment of disease in medical practice today, a development associated with this voluntary medical system. This medical practice, founded on the doctor-patient relationship, has been advanced by tremendous medical discoveries, the introduction of new techniques and specialties, and improved professional education during the past two generations. Ironically, every advance of man seems to bring its own problems, the Greeks had a word for it, "cost of opportunity." A changing medical practice and a changing society have presented us with an embarrassing number of what are paradoxically problems of progress. It is the solution of these problems which now concerns us all.

I welcome this opportunity, especially, to consult with you, the nation's medical leaders, representing as you do the American Medical Association's 140,000 physicians and surgeons, on these common problems

There is little controversy on our objective—the best medical care possible for the people. It is the means to this end which raise the problems we face in achieving this purpose. One is the problem of supply. If we are to achieve our objective, the supply of medical care must be adequate and available to all the people. The second is the problem of using these medical resources under a policy which safeguards the traditional principles of our democratic American pattern.

In simple terms, the problems of supply we are facing include, first, problems relating to ways in which all the fruits of modern medicine can be brought within the reach of all the people. A vast array of new techniques of treatment involving costly equipment, costly medication, costly training, and the services of an army of ancillary personnel are now involved in the problems of modern medicine. Although the doctor-patient relationship remains dominant, it is no longer a simple relationship. It has been complicated by the introduction of new specialties and factors, as well as by new emphasis on prevention of disease and renewed responsibility for the total health problems of the patient against the background of his situation. Modern medicine is not only complex—it is expensive to supply. The second of these problems relates to meeting the cost of research underlying these medical advances and continued progress. The third broad problem relates to the supply of physicians in the face of mounting cost of education for the practice of this modern medicine. These, briefly, are our problems of supply.

In the use of our medical resources, we must first be careful to work within the democratic principle. Democracy is a doctrine of free will, grounded on the demonstrated ability of man to judge his own individual and common interest on the basis of his common human experience.

The freedom of man, therefore, to make his own choices in his 'life, liberty, and pursuit of happiness,' choices which no other man can make for him, is essential to human dignity, development, and progress. Hence, although man is a social animal and must act with his fellows to achieve the common goals of humanity, freedom and well being, his right to self-direction must be safeguarded, in such social action, by the establishment of the social controls involved only with his active consent.

The touchstones of democracy are "freedom," "consent," and "individual responsibility," not responsibility vested in an "elite" group with power to make choices and provide for the individual. One of the most significant phrases in our Constitution is the phrase "promote—not provide—the common welfare." In democracy, no one need walk alone, but he does his own walking. These simple propositions may be said to be the dialectics of the democratic private enterprise system.

Since we are committed to this democratic system as the system which creates the greatest opportunity for man's achievement of dignity and freedom, any policy which impairs this principle is regressive. The impairment of the principle of free choice and consent in medical care which is inherent in a compulsory program of medical care, therefore, represents a break in the fabric of our democratic system. This break occurs, moreover, in an area in which the value of the elements of "choice" and "consent" is intensified because of the very nature of the service involved. Under such a policy a long turn toward an authoritarian system would be made. The course of this social pathology is dangerously progressive and difficult to reverse.

It is clear that the democratic principle to which we are committed is not served by so-called socialized medicine. Such medical practice, moreover, not only violates the democratic principle of free choice and consent, but it is unsound from an economic point of view—the second principle involved in the use of our medical resources.

Democracy not only protects man's rights to free choice, and is the only system which creates these conditions of human

progress, it is the most economical form of social political organization man has yet devised. For when the government provides a service, the cost of a round trip ticket for the dollar from the tax payer to the government back to the tax payer must be paid. Hence, the interposition of the government between the doctor and the patient is expensive and the total resources for medical care, research, and education are at the last, reduced by the amount of this cost. This is the point which seems never to be fully recognized by those of socialist persuasion.

We now come to a third principle which must govern the use of our medical resources, equal opportunity for medical care, the heart of our over-all objective. While in the short run it might appear that socialized medicine may achieve this end, in the long run its involved and costly administration, its deadly effects on free inquiry and research, and its impairment of democratic rights to free choice ultimately defeat our long-view purposes of continuing medical progress and the maintenance of the high standards of medical care which the American medical profession has achieved for this country under a private voluntary system. "Equality" of medical opportunity becomes a hollow victory under these conditions.

In brief, universal medical care provided by the government not only threatens the democratic principle but is uneconomic and inherently self-defeating. It is not the way to the achievement of our objective—the best medical care and the highest level of national health possible.

Socialized medicine is not a satisfactory solution of our problem. What are the alternatives? As a nation we cannot afford to fail to make available the best medical care possible to all our people. We must find ways to resolve the problems we set forth earlier. This Administration is looking, first, to the physicians of the country for leadership in meeting this challenge, and we look with confidence.

The history of medicine is a record of devoted service to humanity. The American medical profession has long proved its devotion to these ideals. Its accomplishments constitute a proud record in medical history. The demands of today are only the continuing challenge in this long history of constant adaptation to a changing society, but never have these problems been more onerous and critical than today. I can put these issues no more clearly or forcefully than they were expressed by your illustrious President, Dr. Louis H. Bauer, in his monthly message to you in your Journal in February of this year. Dr. Bauer stated: "I am afraid that too many physicians are indulging in wishful thinking that the clock can be turned back and that we can again practice medicine as it was practiced 25 years ago, without involvement in all these socioeconomic problems. It is idleness to believe that. These problems are upon us, our whole way of life has been altered, and, whether we like it or not, we cannot close our eyes to it. If we fail to participate and lead in the solution of these problems, the solution will be taken out of our hands, and that solution will not be a happy one. No problem can be solved well if those most competent to advise hang back and ignore it. So it is up to those of us who are active in the affairs of medicine to educate our colleagues and to stimulate their interest in what may be termed the nonscientific aspects of medicine. Unless we handle these nonscientific matters properly, the scientific aspects will suffer, too." We think the American Medical Association will meet this challenge.

Second, this Administration looks to the individual citizen to meet his responsibilities by making full use of resources made available to him through modern medicine for the preservation of his health, by prudent participation in pre-paid plans for medical care, and by assumption of common responsibilities for the advancement of the health of our nation.

Again, we have faith that the individual citizen will meet this challenge. His understanding of the meaning of the questions involved, however, should be widened. Under any plan he pays. He should learn more about what his dollar buys under a compulsory program administered by the government and under a private, voluntary system and what his democratic rights mean to him.

Third, this Administration looks to the community acting both through its private voluntary associations and its governmental bodies, for help in meeting this challenge

We are all familiar with the tremendous role of private foundations in the advancement of medical science in this country. It has been estimated that in 1951, philanthropic foundations such as Rockefeller Foundation, Ford Foundation, Commonwealth Fund, New York Foundation, Russell Sage Foundation, Guggenheim Foundation, and many others, contributed \$10 million toward the support of medical research, voluntary health associations had contributed another \$10 million, and voluntary health agencies interested in specific diseases such as the American Cancer Society, Damon Runyon Medical Foundation, National Foundation for Infantile Paralysis, etc., had contributed another 10.6 million dollars in 1951 (Who Pays for Medical Research, *Medical Economics* 28:8 [July] 1951). The American Medical Association itself is one of these donors to causes of medical advancement.

Governmental bodies also carry responsibilities in working out plans of medical care which meet our conditions and achieve our objectives. As this whole speech indicates, the role of the government, particularly the Federal Government, is a basic question in our problem. This Administration believes that under a democratic system, the government has an important role to play. The broad framework of this government responsibility was defined by President Eisenhower in his State of the Union message last February when he said "First, the individual citizen must have safeguards against personal disaster inflicted by forces beyond his control, second, the welfare of the people demands effective and economic performance by the government of certain indispensable social services."

The Department of Health, Education, and Welfare has been created to discharge these responsibilities of the Federal Government. As the representative of this Department, I will briefly outline some of these responsibilities, which may be broadly defined as those functions which serve the health of the nation without affecting the doctor-patient relationship in medical practice.

The first area of concern is public health—prevention of disease, improvement of standards of sanitation in all areas, including food and drugs, assistance and consultations to local communities in establishing and maintaining health services, etc. The achievements of government at all levels cooperating with voluntary groups in advancing public health in these fields are too well known to recount, these are not areas of controversy.

Another appropriate area of government function is research. Although the achievements of private and voluntary organizations and groups in research have been phenomenal, the increasing scope of research, its cost, its basic and indispensable role in modern medicine make it a field in which government support is sought.

Other areas of governmental responsibility in medical fields not under the Department of Health, Education, and Welfare are responsibility for medical care and health of members of the armed forces and related responsibilities for such services to veterans.

Another area in which the Congress has assumed an obligation for medical care is in the rehabilitation program, the restoration of the disabled. This is one of the areas in which private and voluntary medical services have worked closely with government agencies with success and without prejudicing the principle of voluntary and private medical practice in a service administered by a government agency. This type of service is a development in democratic society for the community care of those who are unable to provide essential services for themselves, the medically indigent. This aspect of our problem is increasing and is becoming one of the underlying issues in this situation. Because of tremendous advances in medicine, people are living longer and the incidence of chronic disease is increasing. The implications of these facts, and the problems they pose, are well understood in this group.

There remains another area where the pressure of need is compelling a review of all possible methods of solution, and

that is the area of medical education, where the financial crisis is growing. A recent estimate of need for additional support by medical schools, based on data accumulated by the Association of American Medical Colleges, shows that schools need approximately \$20 million a year to meet current inadequacies. The medical profession has begun to contribute substantial sums (more than \$3,000,000 to date) to the National Fund for Medical Education, organized to meet this emergency. In May, the Fund reported that in addition to this money, corporate gifts amounting to \$570,882 had been received with an additional \$300,000 in sight. At best, only 10% of the amount needed is now available. There must be a renewed drive for voluntary support of medical education and increased support by local governments, for these problems of medical education cannot go unanswered.

The importance of government responsibilities in these areas is considered of such moment by this Administration that a position for a Special Assistant for Health and Medical Affairs has been set up in the Department of Health, Education, and Welfare. I know you are extremely interested in the appointment of this Special Assistant. I am sorry I am unable to announce that appointment today. During the past month, I have personally interviewed several outstanding candidates. At present, the FBI is securing full field checks on four men. Until I have these reports, I cannot forward my recommendation to the President. But when these reports are received, my recommendation will be forwarded to the President at once and the nomination of a Special Assistant will be sent to the Senate for confirmation. I am pleased to assure you that he will be a doctor of medicine.

In closing, let me quote again from your President, Dr. Bauer: "We can solve our difficulties if all contribute by sound thinking, by looking forward, not back, and by constant striving toward an ideal that we shall never reach, because we shall steadily increase that ideal."

We already have patterns of cooperation and joint action set by years of close partnership between the government, the people, and the medical profession. We can see the results of this partnership in every phase of our national health. We need only to push forward together to achieve a better health care for the people of the United States. We have the resources. We have the will. We shall surely find the way.

The audience rose and applauded at the conclusion of Mrs. Hobby's address.

Introduction of Mr. A. Leslie Hodson

Dr. Dwight H. Murray, Chairman, Board of Trustees, introduced Mr. A. Leslie Hodson of the legal firm of Kirkland, Fleming, Green, Martin and Ellis, Chicago, stating that Mr. Hodson has served the Board of Trustees as legal consultant for the past two years and that his services were available at this meeting of the House of Delegates particularly for any consultation desired by reference committees.

Report of American Medical Education Foundation

Dr. Elmer L. Henderson, President of the American Medical Education Foundation, presented the following report, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary.

I want first to thank the House of Delegates for affording me the opportunity to present a report on the progress that is being made by the American Medical Education Foundation in its effort to give financial assistance to the nation's medical schools. The Foundation's program to carry on a campaign at the state and local level through the medium of volunteer committees was adopted in the early part of 1952 and is still in effect, since it seemed wise to continue the grass roots approach as long as the present level of contributor returns continues. In 1951 we raised a total of \$745,000 from 1,876 contributors, from January to December, 1952, we saw that amount increased by \$151,000 to a total of \$906,000. The number of contributors grew from 1,876 in 1951 to 7,259 in 1952, an increase of 287% over the previous year.

The Foundation has transferred in excess of \$1,650,000 to the National Fund for Medical Education and, in turn, that organization has made grants to the nation's 79 approved medical schools of more than \$2,918,000. The medical profession provided approximately 50% of the total dollars disbursed in the grants to our medical schools. The Foundation will make another transfer of funds to the National Fund on June 30, which we have every reason to believe will exceed one million dollars. This will bring the total raised and transferred to over \$2,650,000 during the 30 months that the Foundation has been in operation. In 1953, as in the previous year, we have set a goal for our efforts of \$2 million dollars, and we are extremely hopeful that as the year progresses we shall see that goal attained. The goal is a realistic one that will enable the medical profession to carry its share of the National Fund's goal of 10 million dollars, which will give the needed stimulus to business and industry to bring in the remaining 8 million dollars.

As you already know, the Trustees of the American Medical Association again voted a half million dollar grant to seed the 1953 campaign. This is the third such grant and raises to \$1,500,000 the money given to the Foundation by the A. M. A. I am happy to report that the majority of the states are now engaged in active campaigns to put this program across. Some of the state campaigns are in progress at this time, and others will be carried on toward the last months of the year. In general the picture is very gratifying on all fronts.

At this time, I want to point out certain state efforts that have proved beyond much doubt that the cause is worthy and, when taken to the individual will receive support. Illinois leads all states in the total sum contributed by its members, having voted an increase of \$20 in the state society dues to go to the Foundation. Indiana, Pennsylvania, Nebraska, and Colorado also did outstanding work in their state campaigns. Nebraska was perhaps the outstanding state effort, despite the fact that Indiana led them in both dollars and total contributors. Under the leadership of Dr. L. D. McGuire of Omaha, in a 30 day period Nebraska raised \$49,146 in cash and obtained almost \$33,000 in pledges, payable over the next two years by the personal contact system. This from a state having a doctor population of 1,300 is certainly proof positive that if the Foundation's program is taken to the doctor by the leaders in his profession, he will respond. It also leaves little doubt that the doctor wants to keep the medical schools academically free and financially solvent.

It is too early to make an accurate appraisal of the results of the various state campaigns for this year. However, when we look at the existing income figures, we have no qualms about saying that excellent progress is being made. The Foundation received during the first five months of this year \$140,000 more than it had received from individual contributors for the same period in 1952. Including the half million dollar American Medical Association grant, the Foundation has received \$761,670 from 10,436 contributors, and you will be happy to hear that the contributors exceed 1952's total by more than 3,100, with seven months remaining in the current campaign year.

We have made very substantial progress, but we cannot relax our efforts if we are to attain the 2 million dollars which has been set for the profession. There is ample time for you to return to your home states and take an active part in raising this much needed money, and, before you find other pursuits to occupy your time, may I relay to you this word of advice from President Eisenhower, who, in a recent letter to the leaders of the National Fund for Medical Education, said, 'Private support of higher education in America is fundamental to the democratic tradition. American business and the medical profession must assume a greater share of the operating costs of our medical schools or they shall have no recourse but to federal subsidy—a perilous alternative.'

Gentlemen, we cannot assume because there has been a change of administration in our federal government that the threat of federal subsidy of our medical schools has passed—far from it. The Washington Office of this association in-

formed us earlier in the year that proposed legislation on this matter was probable during the current Congress. Now is the time for the medical profession to insure the future freedom of our medical schools by redoubling its efforts to make every member of the profession an active supporter of the Foundation. We have yet to meet the challenge squarely, and, until we do, most certainly we cannot expect American business to support this project wholeheartedly. I hope every member of this house will, if he has not already done so, contribute promptly and generously to the Foundation, and that he will make it his personal responsibility to return to his home state and take an active interest in the state effort. If you will do this, my report at this time next year will be one we can all be proud of, it will be a report of complete success.

Gentlemen, the eyes of the general public are upon us, and we can strike another blow at socialization by doing a successful job within our profession—providing the necessary funds to keep our medical schools free from financial worry and their teaching standards at the present high levels. If we fail, it could well be the 'foot in the door' that will allow the socialization of the medical profession and ultimately of our nation. I am sure that we will not allow this to happen, now or at any future date. It is not in the best tradition of our profession.

I would like to announce that every one of your officers and every member of your board of trustees has contributed to the fund this year, as in past years. I wish I could say that for the members of the House of Delegates, and I want you to know that we will be glad to receive any contributions from you during this meeting.

Report of Reference Committee on Reports of Board of Trustees and Secretary

Dr. H. Russell Brown, Chairman, submitted the following report, which was adopted:

Report of the American Medical Education Foundation Presented by Its President Dr. Elmer L. Henderson. Your committee has studied this progress report and commends the outstanding efforts and accomplishments of Dr. Henderson and his Foundation in their fight to maintain and preserve academic freedom in medical education. Your committee recognizes that unless this voluntary effort is continued to its ultimate success, undesirable solutions to the problem may result.

It has come to the attention of your reference committee that there exists widespread concern in our profession over the rising costs of medical education. Your committee believes that it is highly desirable to consider a long-range study of medical education in which all elements of our profession participate with equality of representation emphasized.

Presentation of Certificates from American Medical Education Foundation

Dr. Edwin S. Hamilton, member of the Board of Directors of the American Medical Education Foundation, announced the presentation of certificates—Awards of Merit—to organizations or individuals who had given \$1,000 or more during the past year to the Foundation, as follows:

American Society of Anesthesiologists
Utah State Medical Association
Southern Medical Association
Woman's Auxiliary to the Los Angeles County Medical Association
American College of Radiology
Woman's Auxiliary to the American Medical Association
Medical Association of Georgia
Connecticut State Medical Society
Medical Society of the State of New York
Mr. Lawrence Saunders, Saunders Publishing Co.
Dr. George F. Lull
Dr. Elmer L. Henderson
Dr. Elmer Hess
Dr. Gunnar Gundersen

Dr. Hamilton announced the presentation of a special Award of Merit to Mr. Russell F. Staudacher, first Executive Secretary of the Foundation.

(To be continued)

MEDICAL NEWS

ARIZONA

Personal—Dr William Paul Holbrook, Tucson, recently gave the annual Ralph Pemberton memorial lecture before a joint meeting of the Philadelphia Rheumatism Society and the Eastern Pennsylvania Chapter of the Arthritis and Rheumatism Foundation—Dr Lad R. Mezera, director of maternal and child health for the state department of public health, recently resigned to accept a similar position with the Kentucky State Health Department at Louisville—Dr David M Solomon, Phoenix, was recently named to membership in the state board of public welfare—Dr R Lee Foster, Phoenix, has been named editor-in-chief of *Arizona Medicine*

Maricopa Academy of Medicine—The Maricopa County Medical Society recently opened its new headquarters, the Academy of Medicine, at 2025 N Central St., Phoenix. The stucco structure, a former residence that has been remodeled, has offices, meeting rooms, a lounge, a 10,000 volume medical library, and employs a staff of 15. At the dedication services, Mr Fred Mitten, executive secretary, paid the following tribute to Dr Howell S Randolph, Phoenix, who was chairman of the library board in 1946, when the society adopted



Headquarters for the Maricopa County Medical Society

its library expansion program "The society owes a debt of gratitude to Howell Randolph. Without his vision and foresight the expansion fund would not have been established and it would not be possible for us to have our new headquarters today." The present library board consists of Dr Joseph Bank, chairman, Drs Randolph, Hayes W Caldwell, Fred W Holmes, and David C James, all of Phoenix. The Housing Committee, which arranged for purchase of the site, consisted of Dr G Robert Barfoot, chairman, and Drs Holmes, Paul B Jarrett, Hilary D Ketcherside, George G McKhann, and C Selby Mills, all of Phoenix.

CALIFORNIA

Pediatric Conferences—The University of California Medical School, San Francisco, will hold pediatric conferences, June 22-26. Fee, \$50. For information, write to Dr Stacy R Mettler, Head of Postgraduate Instruction, Medical Extension, University of California Medical Center, San Francisco 22.

Health Aspects of Survival—The third annual workshop on "Health Aspects of Survival" will be sponsored by the School of Public Health and the University Extension of the University of California, with the cooperation of the California

Physicians are invited to send to this department items of news of general interest for example those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

Office of Civil Defense and the Federal Civil Defense Administration, June 22 to July 3. Among the topics to be considered are medical and health services in civil defense, emergency medical care, epidemic diseases, defenses against biological warfare, health aspects of disseminated radioactivity, and the need for health education. Field demonstration will be given in medical care and rehabilitation of casualties, laboratory methods of disease control, techniques of instruction, experimental medicine, radioactive isotopes and atomic energy, and disaster operations. At the final dinner Thursday, 6:30 p.m., John Beeston, DPH, assistant professor of public health, University of California, Los Angeles, will speak on "London During the Blitz." The fee for the workshop is \$30. For further information write to the Department of Conferences and Special Activities, University Extension, University of California, Berkeley 4.

CONNECTICUT

University News—Dr Arnold D Welch has been appointed professor of pharmacology at Yale University School of Medicine, New Haven, to succeed the late Dr William Salter. Dr Welch has been chairman of the same department at Western Reserve University School of Medicine, Cleveland, since 1944 and is also chairman of the Committee on Growth of the National Research Council—Dr Norman A. Cameron, professor of psychology and psychiatry at the University of Wisconsin Medical School, Madison, has been appointed professor of psychiatry at Yale University—The recently completed West Haven Veterans Hospital, affiliated with the Yale University School of Medicine, has provisions for 340 general medical and surgical patients, 396 patients with tuberculosis, and 144 neuropsychiatric patients.

FLORIDA

University News—Dr Jacques S Gottlieb, formerly professor of psychiatry, State University of Iowa College of Medicine, Iowa City, who was recently appointed chairman of the department of psychiatry at the University of Miami School of Medicine, Coral Gables, and director of the Psychiatric Unit of Jackson Memorial Hospital, Miami, will assume his new duties July 1. Dr Gottlieb, a charter member of the Group for the Advancement of Psychiatry, is chairman of the Committee on Research of the American Psychiatric Association.

ILLINOIS

Fifty Year Club—At a luncheon given during the annual meeting of the Illinois State Medical Society in Chicago, Dr Ernest E Irons, president of the Board of the City of Chicago Municipal Tuberculosis Sanitarium, was inducted into the 50 Year Club.

Institute for Public Health Officers—The Illinois Association of Medical Health Officers and the Illinois Society for Mental Health will conduct an institute for public health officers of the local, county, and state health departments at Allerton Park, June 21-27, with the cooperation of the state department of public health and the state department of public welfare, which is financing the institute with funds available from the Illinois Mental Health Authority. The first of its kind in Illinois, the institute is planned to give key physicians in the state and local health departments an opportunity to explore the mental health implications of public health programs and thus further improve the effectiveness of the service of the health departments to their communities. Speakers for the institute are Drs Roger W Howell, professor of mental health, University of North Carolina School of Public Health, Chapel Hill, Edward M Thompson, Clinton, president,

Illinois Association of Medical Health Officers, Roland R. Cross, Springfield, director, Illinois Department of Public Health, Otto L. Bettag, Chicago, director, Illinois Department of Public Welfare, Harald M. Graning, Chicago, regional medical director, Region 5, U S Public Health Service, Nathaniel S. Apter, head, division of psychiatry, University of Chicago School of Medicine, Helen C. Coyle, Peoria, and Julius B. Richmond, superintendent, Institute for Juvenile Research, Chicago

Chicago

Meeting on Industrial Medicine—The Chicago Society of Industrial Medicine and Surgery will hold its annual meeting June 22, 8 p m in the Palmer House (room 18, fourth floor), under the presidency of Dr. George W. Bohr. Dr. Edward C. Holmblad, managing director, Industrial Medical Association, will present "Highlights of Los Angeles Industrial Health Conference," and Dr. Max S. Sadove, University of Illinois College of Medicine, will speak on "Anesthesia and Analgesia for the Emergency Patients." All persons of allied medical groups and especially members of the Chicago Medical Society are invited.

Don Anderson Appointed Dean at Rochester—Dr. Donald G. Anderson, Secretary of the A. M. A. Council on Medical Education and Hospitals since 1947, and formerly dean of Boston University School of Medicine, has been named dean of the University of Rochester (N. Y.) School of Medicine and Dentistry, effective with the opening of the 1953-1954 academic year. He succeeds Dr. George Whipple, dean since the founding of the school in 1920, who will continue to serve as professor of pathology. Dr. Anderson has been affiliated with the Boston City Hospital and Massachusetts Memorial Hospital in Boston, and St. Luke's and Presbyterian hospitals and the Columbia University College of Physicians and Surgeons in New York. He is secretary of the Committee for Survey of Medical Education and secretary of the Joint Committee on Medical Education in Time of National Emergency.

IOWA

National Cancer Award—With the recent presentation of the American Cancer Society 1953 Cancer Crusade Plaque and Citation to the Linn County chapter, Iowa became the first division of the American Cancer Society to win top national recognition three consecutive years for outstanding work in cancer control.

Institute of Gerontology—As an outgrowth of discussions by state leaders attending the first Iowa Conference on Gerontology, the State University of Iowa, Iowa City, has announced the creation of the Iowa Institute of Gerontology, which will serve as a research station and service center for the pooling of resources and work concerning the problems of Iowans over 65 years of age. The institute will also collect data in such areas as financial resources, employment, housing, recreation, family life, and religious expression, making such data available to all seeking information on these subjects.

MAINE

Centennial Session in Portland—The 100th anniversary of the Maine Medical Association will be celebrated at the annual convention in the Eastland Hotel, Portland, June 21-24. Dr. Eugene H. Drake, Portland, president, will open the public meeting at the City Hall Auditorium Sunday, 8 p m, at which Gov. Burton M. Cross will deliver an address and Dr. Thomas A. Foster, Portland, will give a historical sketch of the association. Monday at 9:30 a. m. the Maine Ophthalmological Society will conduct an eye clinic at the Maine Eye and Ear Infirmary, Portland. Tuesday and Wednesday, 9:30 a. m., there will be scientific clinic series at the Maine General Hospital, Portland (Dr. J. Robert Downing, Kennebunk, presiding), and Mercy Hospital, Portland (Dr. Ralph C. Stuart, Guilford, presiding). The luncheon meeting of the Maine Ophthalmological Section, Monday, 12:30 p m., in the Colonial Room, will be followed by an address on

"Newer Concepts in Glaucoma" by Dr. Paul A. Chandler, Boston. The Portland Medical Club will be host at a cocktail party Tuesday 5:30 p m., which will be followed by dinner in the Eastland Hotel ballroom. Dr. Harris P. Mosher, Walter Augustus Lecompte Professor of Otolaryngology and professor of laryngology, emeritus, Harvard Medical School, Boston, will speak on "My Creed," and Dr. Fred J. Pritham, Greenville Junction, will give "Memoirs of a Country Doctor." Dr. Ernest B. Howard, Assistant Secretary, American Medical Association, Chicago, will address the indoctrination meeting for new members at a luncheon Wednesday and will be guest speaker at the annual banquet at 6:30 p m., when his subject will be "A. M. A. Serves the Profession." The president's address will be delivered by Dr. Drake at the banquet.

MASSACHUSETTS

Program on Occupational Health—"Management Responsibility for Occupational Health" will be the subject of a special summer program at the Massachusetts Institute of Technology, Cambridge, June 22-26. The program, under the joint supervision of Dr. Dana L. Farnsworth, director of the M. I. T. medical department, and Dr. Harriet L. Hardy, head of the M. I. T. occupational medical service, will include industrial medical organizations and the supporting administrative relationships, effects of toxic chemicals, harmful dusts, and excess ionizing radiations, with methods of control, procedures for handling fire and explosion risks and personality factors involved in the relationships within industrial organizations. Such problems as the privacy of medical knowledge, medicolegal responsibility, management's interest in proper placement of very young and aging workers, and rehabilitation of younger injured workers will be discussed. Information may be obtained from the Director of the Summer Session, Room 3-107, Massachusetts Institute of Technology, Cambridge 39.

MISSISSIPPI

State Association Building—The Mississippi State Medical Association has opened negotiations for the procurement of land for a permanent, modern building in which the central office of the association will be housed. The proposed site is adjacent to the new medical school now under construction in Jackson.

MONTANA

Medical-Surgical Conference—The annual Cascade County Medical-Surgical Conference will be held at the Meadow Lark Country Club, Great Falls, June 22-23. Guest speakers will include Drs. Norman F. Miller, Arthur C. Curtis, and Albert C. Furstenberg, Ann Arbor, M. Digby Leigh, Vancouver, B. C., Canada, Wesley W. Spink, Minneapolis, and Arild E. Hansen, Galveston, Texas. There will be round table discussions both days. The banquet will be held Monday.

Personal—The Women's Medical College of Pennsylvania, Philadelphia, recently named Dr. Dora Von Holdt Walker of Great Falls as a member of its board to serve in an advisory capacity. Dr. Walker, who has practiced in Great Falls for 35 years, was the first woman president of the Cascade County Medical Society. She is the widow of Dr. Thomas F. Walker. A son, Dr. Thomas F. Walker Jr., also practices in Great Falls.

Society News—The Montana Academy of Oto-Ophthalmology recently elected Dr. Joseph C. LaPierre, Butte, president, and reelected Dr. Harvey L. Casebeer, Butte, as secretary-treasurer. —The Montana Obstetrical and Gynecological Society at its Spring meeting in Bozeman elected Dr. Stephen N. Preston, Missoula, to serve as president for a term of two years. Dr. Harold W. Fuller, Great Falls, was named president-elect, and Dr. Leonard W. Brewer, Missoula, secretary-treasurer. —At the recent meeting of the Northeastern Montana Medical Society, Dr. Joseph H. Williams, Culbertson, was elected president, and Dr. Henry J. Borge, Wolf Point, was reelected secretary-treasurer.

NEW YORK

Medal to Dr Snell—At the annual meeting of the Rochester Academy of Medicine, Dr Albert C Snell Sr, Rochester, a former chairman of the A M A Section on Ophthalmology, was awarded the Albert David Kaiser medal Dr Snell is the author of "Industrial Ophthalmology" and has published many articles in medical journals He is a past president of the Monroe County Medical Society and has served as secretary and president of the American Academy of Ophthalmology and Otolaryngology

Cerebral Palsy Institute—The third professional cerebral palsy institute for physicians, nurses, physical, occupational, and speech therapists, social service guidance workers, and teachers will be held June 29 to July 10 at Brooklyn College under joint sponsorship of the Coordinating Council for Cerebral Palsy in New York City and the speech and hearing department of Brooklyn College The program will feature related problems in the area of speech disabilities relative to persons with cerebral palsy Information may be obtained from Marguerite Abbott, executive director, Coordinating Council for Cerebral Palsy, 509 Madison Ave., New York

New York City

Dr Hetrick Retires as Dean—Dr J A Werner Hetrick, who has served the New York Medical College Flower and Fifth Avenue Hospitals as dean since 1941, and as president since 1942, has announced his retirement as dean, he will continue as president. Dr Hetrick served as registrar from 1925 to 1927, when he was appointed assistant dean and professor of otolaryngology In recognition of his services, the board of trustees and the faculty bestowed on Dr Hetrick the honorary degree of doctor of science at the 1951 graduation exercises Dr Ralph E Snyder, assistant dean of the college since 1951, has been appointed executive dean

Dr William Dock Honored—At a dinner at the Waldorf-Astoria, a portrait of Dr William Dock, professor of medicine, State University of New York College of Medicine at New York City, Brooklyn, was presented to the college and the Kings County Hospital by a group of his Brooklyn associates Dr Jean A Curran, dean of the college, and Dr Israel Magelaner, medical superintendent of the hospital, accepted the portrait The principal speaker was Dr William H Resnik, Yale University, New Haven, Conn Other guest speakers included Dr Tinsley R Harrison, Birmingham, Ala., Drs Chester S Keefer and Samuel A Levine, Boston, and Dr Perrin H Long, Brooklyn Dr Dock, who became professor of medicine at the Long Island College of Medicine, now State University of New York College of Medicine at New York City, in 1944, previously served as professor of pathology at Cornell University Medical College and at Stanford University School of Medicine, San Francisco

OKLAHOMA

Society News—Dr Gilbert L Hyroop, Oklahoma City, will be guest speaker for the Tulsa Academy of General Practice June 22, 8 p m at the Hotel Tulsa His subject will be Reconstructive Surgery of the Hand

New Alpha Omega Alpha Chapter—At the installation of the University of Oklahoma chapter of the Alpha Omega Alpha society in Oklahoma City, 26 men were initiated as charter members Dr Walter L Bierring Des Moines, Iowa, national president of the organization, presented the charter at a dinner in the Oklahoma Club

PENNSYLVANIA

Medical School Crisis Discussed by Business Leaders—Under the auspices of the National Fund for Medical Education, steps to mobilize private financial support in the Philadelphia area in behalf of the nation's 79 medical schools were recently discussed at a meeting of industrialists, business leaders, and educators, sponsored by Mr Francis Boyer, president of Smith, Kline & French Laboratories, Philadelphia This is the eighth of a national series in support of the fund's 10 million dollar solicitation campaign to overcome serious financial deficits facing the medical schools

Personal—Dr John B Levan, president of the Pennsylvania Heart Association, has been named chief of the cardiology department of St Joseph's Hospital, Reading Dr Levan also serves as assistant professor of medicine at the Woman's Medical College of Pennsylvania in Philadelphia—Dr C. Irvin Stiteler, Chester, who for 27 years served in the House of Delegates of the Medical Society of the State of Pennsylvania and for many years as editor of the *Bulletin of the Delaware County Society*, recently resigned his editorial post The county society presented him with a citation wrist watch as a token of appreciation for his services—Dr Henry R. Steadman, chief medical director of the Erie school system for 35 years, has announced his retirement, effective July 1 Dr Wilbur S Wallace, who served as his assistant for the past five years, has been named to succeed him

Pittsburgh

Dr McGibony Succeeds Dr Brooks—Dr John R McGibony, medical director, U S Public Health Service, has been named professor of hospital and medical administration in the University of Pittsburgh Graduate School of Public Health, succeeding Dr Glidden L Brooks, who has resigned to become medical director of United Cerebral Palsy on July 1 Before joining the Service in 1936, Dr McGibony served as chief medical officer and hospital administrator of the Indian agencies at Belcourt, N D, and Pine Ridge, S D, deputy state health officer for the North Dakota State Health Department, superintendent of the Phoenix (Ariz.) Sanatorium, and administrator for the Office of Indian Affairs in the Department of Interior, with administrative jurisdiction over 75 hospitals He became simultaneously director of health for the Office of Indian Affairs and hospital consultant, Hospital Facilities Section of the U S Public Health Service, subsequently being appointed assistant chief, Division of Hospital Facilities, a position he held until he assumed his present position in 1949 Dr McGibony, who is a hospital consultant to the National Security Resources Board and a faculty lecturer at the Naval Medical School, Bethesda, Md., is the author of "Principles of Hospital Administration"

WISCONSIN

Conference on Alcohol Studies—The annual Conference on Alcohol Studies, sponsored by the University of Wisconsin Extension Division, will be held on the campus at Madison, June 22-26 Participation is primarily for physicians, medical and health personnel, social workers, teachers, clergymen, police and parole officers, vocational rehabilitation workers, industrial personnel, and students Recent trends in treatment and research in alcohol and alcoholism, and methods of community organizations and educational institutions in dealing with the problem, will be discussed by authorities in the field from the University of Wisconsin, the Yale University Center of Alcohol Studies, state agencies, and national groups Information may be obtained from Prof J L Miller, Conference Director, 206 Extension Building, University of Wisconsin, Madison 6

State Laboratory of Hygiene—The State Laboratory of Hygiene, which originated in 1903 in a single small room in the basement of Agricultural Hall at the University of Wisconsin in Madison, recently dedicated its new \$1,125,000 building The laboratory, which is directed by Dr William D Stovall, conducts tests on some 170,000 specimens sent to it annually by physicians, veterinarians, public health nurses, sanitarians, and others throughout the state This compares with 7,000 tested in 1910 and 60,000 in 1928, when the laboratory was moved to the Service Memorial Institutes building Dr Carl N Neupert, director of the state board of health, presided at the dedicatory ceremonies Other speakers included Dr William S Middleton, dean of the University of Wisconsin Medical School, Dr Stovall, Dr Joseph C Griffith Milwaukee, president of the State Medical Society of Wisconsin, and Dr Leonard A Scheele, surgeon general, U S Public Health Service, who delivered the chief dedication address and spoke at the testimonial dinner tendered by the state society to Dr Stovall

GENERAL

Fulbright Awards Offered.—U S government awards (1954-1955) under the Fulbright Act have been announced for Austria, Belgium and Luxembourg, Denmark, Egypt, Finland, France, Germany, Greece, Iraq, Italy, Japan, the Netherlands, Norway, Pakistan, Sweden, and the United Kingdom and Colonial Dependencies. Application forms for university lecturing and postdoctoral research are obtainable from the Conference Board of Associated Research Councils, Committee on International Exchange of Persons, 2101 Constitution Ave., Washington 25, D C. Applications must be postmarked no later than Oct 15, 1953.

Traffic Safety Honor Roll.—The National Safety Council announces that, for going through the entire year 1952 without a single traffic fatality, 799 cities with more than 5,000 population have won places on the honor roll of its traffic safety contest. This is an increase of 52 from the number on the 1951 honor roll. The largest no-death city in 1952 was Evanston, Ill., with a population of 73,600. Hobart, Okla. (5,400 population) which has never had a traffic death since its incorporation in 1901, maintained its perfect record through 1952 for the longest sustained performance among cities of more than 5,000 population. Among cities of more than 10,000, top honors for sustained no-death records went to Belmont, Mass. (27,400), with a record of six consecutive death free years.

Fellowship Program for Israel.—Hadassah, the Women's Zionist Organization of America, Inc., recently announced the establishment of a \$500,000 medical fellowship program, designed to elevate the standards of medicine and science in Israel. The program will enable promising young physicians, nurses, and scientists to come to the United States from Israel to pursue intensive one and two year courses of study in their specialties in American institutions. Cooperating institutions are said to include the University of California, Yale University and Medical School, New Haven, Conn., Harvard Medical School, Boston, Beth Israel Hospital in Boston, Columbia University College of Physicians and Surgeons, New York, Cornell University Medical College and the New York Hospital, Johns Hopkins University and Medical School, Baltimore, and Rockefeller Institute for Medical Research, New York.

Fellowships in Radiation Therapy.—The American Cancer Society offers clinical fellowships in radiation therapy to properly qualified graduates in medicine who have already received thorough basic training in radiation therapy, and who wish further training in that specialty at certain clinics in the United Kingdom, the Scandinavian countries, and France. Fellowships are available to citizens of the United States who are graduates of recognized medical schools in the United States, who have previously received training in therapeutic radiology acceptable to the American Board of Radiology as credit toward certification, and who are under age 40. Priority will be given to physicians (1) who are already certified by the American Board of Radiology, (2) who have completed the required training in preparation for board examinations but who have not yet taken the examinations, and (3) who, while intending to complete board requirements and take the examinations, are still in the training period. The fellowship period will be one year, although in exceptional circumstances, and when not competing with new applications, renewal for one year or less will be considered. For information, write Dr. Brewster S. Miller, Director, Professional Education Section, American Cancer Society, Inc., 47 Beaver St., New York 4.

Meeting of American Orthopaedic Association.—This organization will hold its annual meeting June 29 to July 2 at the Homestead, Hot Springs, Va. Dr. James A. Dickson, Cleveland, will deliver the presidential address. Tuesday Monday at 6:30 p.m. the president's reception and cocktail party will be held, and at 9:30 p.m. "Movie Memories of A. O. A. Meetings 1947-1952" will be shown. Tuesday at 9:30 p.m. there will be movies on "The A. O. A. Returns to London" and "Movies of the Combined Meeting in 1952."

The golf tournament will be held Tuesday and Wednesday at 2:30 p.m. The annual banquet and ball will take place Wednesday 8 p.m. in the Empire Room. A paper on "An Experimental Study of the Effect of Cortisone on the Healing Process and Tensile Strength of Tendons" will be presented by invitation, Thursday, 9 a.m., by Dr. Richard N. Wrenn, Dr. J. Leonard Goldner, and Joseph E. Markee, Ph.D., Durham, N.C. Other speakers by invitation include Drs. William H. von Lackum, Robert Wylie, and James B. Jones, New York; Dr. Ernest A. Brav, San Francisco; Drs. E. Bruce Tovee and Frederick P. Dewar, Toronto, Canada; Drs. Louis E. Ward and Edward D. Henderson, Rochester, Minn.; Dr. Robert J. Joplin, Brookline, Mass.; and Dr. Thornton Brown, Boston.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories, and possessions in the weeks ended as indicated:

Area	June 6 1953		May 31 1952 Total
	Paralytic Type	Total Cases Reported	
New England States*			
Maine			
New Hampshire		2	
Vermont			
Massachusetts	1	2	
Rhode Island			
Connecticut	2	2	
Middle Atlantic States			
New York	2	5	6
New Jersey			
Pennsylvania		1	1
East North Central States			
Ohio		4	1
Indiana		2	1
Illinois	1	5	4
Michigan	3	5	2
Wisconsin		2	2
West North Central States			
Minnesota	4	4	
Iowa	2	6	1
Missouri	2	3	1
North Dakota		1	
South Dakota		2	
Nebraska	1	4	
Kansas		3	1
South Atlantic States			
Delaware			1
Maryland	2	4	
District of Columbia			1
Virginia	3	3	
West Virginia		2	1
North Carolina	5	13	1
South Carolina	4	4	2
Georgia	1	12	
Florida	2	8	9
East South Central States			
Kentucky	5	5	
Tennessee	1	4	2
Alabama	9	19	
Mississippi		9	3
West South Central States			
Arkansas		4	1
Louisiana	2	5	14
Oklahoma	3	8	
Texas	14	50	33
Mountain States			
Montana	1	3	
Idaho			
Wyoming			
Colorado		1	
New Mexico			1
Arizona	1	5	4
Utah		1	1
Nevada			
Pacific States			
Washington			4
Oregon	2	3	1
California	9	29	20
Territories and Possessions			
Alaska			
Hawaii		3	1
Puerto Rico			
Total	82	243	120

CANADA

Society News—The Canadian Neurological Society will hold its annual meeting June 20-21 at the University of Manitoba Medical College in Winnipeg, under the presidency of Dr Jean Saucier, Montreal, Quebec. The scientific sessions will close Sunday with a symposium on neuropathies, 2:15 to 4:30 p.m. Seventeen other presentations are scheduled. The annual dinner will be held Saturday, 7 p.m. at the Royal Alexandra Hotel.

LATIN AMERICA

Meeting on Orthopedics and Traumatology—The Latin American Society of Orthopaedics and Traumatology and the Brazilian Society of Orthopaedics and Traumatology will meet jointly in Rio de Janeiro, Brazil, July 19-26. Symposia will be presented on scoliosis, reticuloendothelioma, fractures of the calcaneus, fractures of the upper extremity of the humerus, and arthroplasties with metal and acrylic prostheses. Courses will be given on surgical treatment of the paralytic foot, treatment of fractures of the upper extremity in childhood, recurrent dislocation of the shoulder, treatment of the paralytic pelvis and knee, and endocrine and metabolic bone disturbances. The new building of 'Clínica Ortopédica e Traumatológica' of São Paulo University will be dedicated after the meeting. For information contact the secretary of the meeting, Praça Floriano 31, 3º andar, sala 303, Rio de Janeiro, Brazil, South America.

FOREIGN

Exhibition of Plastic Arts—The Royal Netherlands Medical Association will hold an exhibition of plastic arts by physicians during the World Medical Association congress at The Hague Aug. 31 to Sept. 7. Physicians are invited to send paintings, drawings, sculpture, and illustrated books. There will be no space for industrial arts. For information write to Dr. A. Melchior, Raamsingel 4, Haarlem.

Irish Medical Association—The annual general meeting of the Irish Medical Association will be held in De La Salle College, Waterford, June 30 to July 4, under the presidency of Prof. Thomas G. Moorhead, Regius Professor of Physics, Dublin University. Medical films will be shown Tuesday, 4:30 to 5:30 p.m. Topics for discussion include antenatal care, antibiotics in general practice, and emergencies in general practice, medical, surgical, and obstetric. On Saturday there will be a visit to the new Regional Sanatorium at Ardkeen.

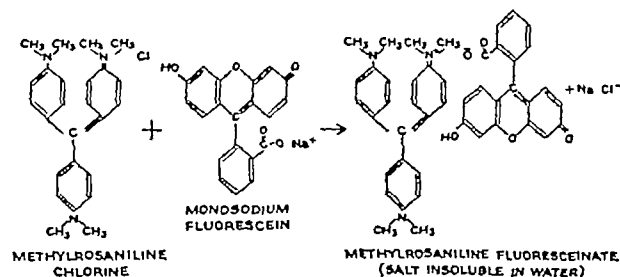
Radiological Congress—The International Congress of Radiology will be held at Monsted Hall, Copenhagen, Denmark, July 19-24. Subjects for the general meetings are 'Protection Against Ionizing Radiation,' 'Contrast Media in Diagnosis and Risks Associated Therewith,' 'Radio Resistance,' and 'Uniformity in Therapeutic Cancer Statistics.' Symposia topics include tomography, chemotherapy of cancer, diagnosis with high voltage rays, radioactive isotopes in medical therapy, angiocardiology, isotopes in biology, present status of radiotherapy in benign diseases, tumors of the lung, osteochondrosis of the spine, pathogenesis of leukemia, and cancer of the cervix uteri.

Funds for Medical Schools—The Rockefeller Foundation has appropriated \$500,000 to the American University of Beirut, Lebanon, for development of the university's medical division. The current grant will be available in sums of \$100,000 for every \$200,000 raised by the university from other sources during a five-year period that began March 1. The financial support of the foundation will go toward the first phase of a modernization program for the medical school, 12 full-time faculty positions in preclinical and clinical departments will be added to the school as soon as possible. The Indian Council of Medical Research has been given 550,000 rupees (approximately \$121,000) by the foundation for postgraduate medical fellowships. Over a three-year period the council will

help train additional Indian medical students to teach in India's medical colleges, adding 25 to the 26 trainees now supported annually. Ordinarily each fellowship will last for two years.

CORRECTION

Treatment of Methylrosaniline Poisoning with Fluorescein Solution—In the clinical note by Hosford and Smith on this subject, in THE JOURNAL, Dec. 13, 1952, page 1482, there appears an erroneous chemical structure of the salt formed by these two dyes. The correct chemical structure follows.

EXAMINATIONS
AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS *Parts I and II* All centers where there are five or more candidates June 22-24 and Sept. 8-10 (Part I only). Candidates may file applications at any time but the National Board must receive them at least six weeks before the date of the examination they wish to take. *Part III* June 9-26. Examination will be held in each of 31 centers having five or more eligible candidates. Exec. Sec. Dr. John P. Hubbard, 133 South 36th St., Philadelphia 4.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY *Written* Various locations July 16. Final date for filing applications was January 17. Sec. Dr. C. B. Hickcox, 80 Seymour St., Hartford 15.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY All candidates must now pass a written examination. *Written* Various centers Sept. 3. *Oral*, Philadelphia Oct. 16-18. To be eligible, candidate must complete 36 months of training before Oct. 1. Final date for filing applications was May 1. Exec. Sec. Miss Janet Newkirk, 66 East 66th St., New York 21.

AMERICAN BOARD OF INTERNAL MEDICINE *Oral*, San Francisco Sept. 28-30; Chicago Nov. 30-Dec. 2. The closing date for acceptance of applications for the San Francisco and Chicago oral examination was April 1. *Written* October 19. The closing date for acceptance of applications was May 1. Exec. Sec. Treas., Dr. William A. Werrell, 1 West Main St., Madison 3.

AMERICAN BOARD OF NEUROLOGICAL SURGERY *Oral* New Haven October. Final date for filing application is July 1. Sec. Dr. Leonard T. Furlow, Washington University School of Medicine, Kingshighway and Euclid Ave., St. Louis.

AMERICAN BOARD OF OPHTHALMOLOGY Chicago Oct. 5-9. *Written* Various centers January 1954. Final date for filing applications is July 1. Sec., Dr. Edwin B. DuPhy, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY Chicago January 1954. Final date for filing application is August 15. Sec. Dr. Harold A. Sofield, 122 S. Michigan Ave., Chicago 3.

AMERICAN BOARD OF OTOLARYNGOLOGY *Oral* Chicago, Oct. 5-9. Sec. Dr. Dean M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PEDIATRICS *Oral* Ann Arbor June 26-27. Place undecided Oct. 9-11 (tentative). Indianapolis November. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PLASTIC SURGERY Final date for receipt of case reports for the fall examination (October-November) is June 1 of each year. Corres. Sec., Mrs. Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8 Mo.

AMERICAN BOARD OF PROCTOLOGY *Part II* *Oral and Written*, *Anorectal Surgery and Proctology* Philadelphia Sept. 19. Sec. Dr. Louis A. Buie, 102 110 Second Ave. S.W., Rochester Minn.

AMERICAN BOARD OF RADIOLOGY *Oral Radiology* *Röntgenology* *Diagnostic Roentgenology* *and Therapeutic Radiology* Chicago Dec. 6-11. Final date for filing application is July 1. Sec. Dr. B. R. Kirklin, 102 110 Second Ave. S.W., Rochester Minn.

BOARD OF THORACIC SURGERY *Written* Various centers throughout the country September 11. Final date for filing application is July 1. Sec. Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr George F. Lull, 535 North Dearborn St., Chicago 10, Secretary
 1953 Clinical Session, St. Louis, Dec. 1-4
 1954 Annual Session, San Francisco, June 21-25
 1954 Clinical Session, Miami, Florida, Nov. 30-Dec. 3
 1955 Annual Session, Atlantic City, N. J., June 6-10

ALASKA TERRITORIAL MEDICAL ASSOCIATION Sitka July 15-17 Dr William P. Blanton P. O. Box 2569 Juneau Secretary

AMERICAN ORTHOPEDIC ASSOCIATION The Homestead Hot Springs Va. June 20-July 1 Dr George O. Eaton 4 East Madison St., Baltimore 2 Secretary

AMERICAN VETERINARY MEDICAL ASSOCIATION Royal York Hotel Toronto Canada July 20-23 Dr J. G. Hardenbergh 600 South Michigan Blvd. Chicago 5 Executive Secretary

MAINE MEDICAL ASSOCIATION Eastland Hotel Portland June 21-24 Mr W. Mayo Payson 142 High St. Portland 3 Executive Secretary

NATIONAL MEDICAL ASSOCIATION Nashville Tenn. Aug. 10-14 Dr John T. Givens 1108 Church St. Norfolk 10 Va. Executive Secretary

PACIFIC DERMATOLOGIC ASSOCIATION Olympic Hotel and University of Washington Seattle July 9-10 Dr Ervin H. Epstein 447 29th St. Oakland 9 Calif. Secretary

ROCKY MOUNTAIN CANCER CONFERENCE, Denver July 8-9 Mr Harvey T. Sethman 835 Republic Bldg. Denver 2 Secretary

SOCIETY OF AMERICAN BACTERIOLOGISTS Palace Hotel San Francisco Aug. 10-14 Dr John H. Bailey, Sterling Winthrop Research Institute Rensselaer N. Y. Secretary

WEST VIRGINIA STATE MEDICAL ASSOCIATION The Greenbrier White Sulphur Springs July 23-25 Mr Charles Lively P. O. Box 1031 Charleston 24 Executive Secretary

FOREIGN

ASSOCIATION OF SURGEONS OF GREAT BRITAIN AND IRELAND Leeds England May 13-15 1954 Dr Henry W. S. Wright 45 Lincoln's Inn Fields London WC2 England, Honorary Secretary

BRITISH MEDICAL ASSOCIATION Cardiff S. Wales July 13-17 Dr A. MacCrae B. M. A. House Tavistock Square London WC1 England Secretary

CONGRESS OF INTERNATIONAL ANESTHESIA RESEARCH SOCIETY Chateau Frontenac Quebec Canada October 26-29 Dr A. William Friend, 515 Nome Ave. Akron 20 Ohio Chairman Program Committee

CONGRESS OF INTERNATIONAL LEAGUE AGAINST RHEUMATISM Geneva and Zurich Switzerland Aug. 24-29 For information write Dr W. Tegner The London Hospital London E.1 England

CONGRESS OF THE INTERNATIONAL SOCIETY OF ANGIOLOGY Lisbon Portugal Sept. 18-20 Dr Henry Haimovici 105 East 90th St. New York 28 N. Y. U. S. A. Secretary

CONGRESS OF THE INTERNATIONAL SOCIETY OF SURGERY Lisbon Portugal Sept. 14-20 Dr L. Dejardin 141 rue Belliard Brussels Belgium General Secretary

INTERNATIONAL CONFERENCE ON THROMBOSIS AND EMBOLISM Basle Switzerland July 15-19 1954 Dr W. Merz, Chief Medical Officer Gynecological Clinic University of Basle Basle Switzerland Hon. Secretary

INTERNATIONAL CONGRESS OF ACUPUNCTURE, Kolpinghaus Adolf Kolping Strasse 1 Munich Germany August 22-25 Dr G. Bachmann 29 Lillienstrasse München 9 Germany Organizer and Secretary

INTERNATIONAL CONGRESS OF ELECTROENCEPHALOGRAPHY AND CLINICAL NEUROPHYSIOLOGY Boston Mass. U. S. A. Aug. 18-21 Dr Robert S. Schwab Massachusetts General Hospital Boston 14 Mass. U. S. A. Secretary-General

INTERNATIONAL CONGRESS OF THE EUROPEAN SOCIETY OF HAEMATOLOGY Amsterdam Holland Sept. 8-12 Dr M. C. Verloep Mallesinghe 15 Utrecht Holland Secretary

INTERNATIONAL CONGRESS ON GENETICS Bellagio Italy August 24-31, Prof C. Barigozzi Istituto di Genetica Università di Milano 10 via Celoria Milan Italy Secretary

INTERNATIONAL CONGRESS OF HIPPOCRATIC MEDICINE Evian France Sept. 3-6 Prof P. Delore 13 rue Jarente Lyons France Secretary-General

INTERNATIONAL CONGRESS FOR HISTORY OF SCIENCE, Jerusalem Israel August 3-7 Prof F. S. Bodenheimer Hebrew University Jerusalem Israel President

INTERNATIONAL CONGRESS OF HYDROCLIMATISM AND THALASSOTHERAPY, Dubrovnik Yugoslavia May 8-16 1954 Prof C. Plavsic Zeleni Venac 1 Belgrade Yugoslavia Secretary General

INTERNATIONAL CONGRESS OF INTERNATIONAL COLLEGE OF SURGEONS Sao Paulo Brazil April 26-May 2 1954 Dr Max Thorek 1516 Lake Shore Drive Chicago Illinois U. S. A. Secretary-General

INTERNATIONAL CONGRESS OF LOGOPEDICS AND PHONiatrics Milan and Stresa Italy Sept. 1-7 Dr Deso A. Weiss 115 East 86th St. New York 28 N. Y. U. S. A. General Secretary

INTERNATIONAL CONGRESS ON MEDICAL LIBRARIANSHIP London England July 20-25 Mr W. R. LeFanu % London School of Hygiene and Tropical Medicine Keppel Street London, W.C.1 England Chairman

INTERNATIONAL CONGRESS ON MENTAL HEALTH University of Toronto Toronto Ontario Canada Aug. 14-21 1954 For information write Executive Officer International Congress on Mental Health 111 St. George St. Toronto Ontario Canada

INTERNATIONAL CONGRESS OF MICROBIOLOGY Rome Italy Sept. 6-12. For information write Dr V. Puntoni Citta Universitaria Rome Italy

INTERNATIONAL CONGRESS ON OBSTETRICS AND GYNECOLOGY Geneva Switzerland July 26-31 1954 Dr H. de Watteville Maternité Hôpital Cantonal Geneva Switzerland President

INTERNATIONAL CONGRESS OF PAEDIATRICS Havana Cuba Oct. 12-17 Prof Felix Hurtado 5a Avenue 124 Miramar Havana Cuba President

INTERNATIONAL CONGRESS OF PSYCHOLOGY Montreal Canada June 7-12, 1954 For information write Prof H. S. Langfeld International Union of Scientific Psychology Eno Hall Princeton University Princeton N. J. U. S. A.

INTERNATIONAL CONGRESS OF RADIOLOGY, Copenhagen Denmark July 19-25 Professor Flemming Norgaard 10 Oster Voldgade Copenhagen K Denmark Secretary General

INTERNATIONAL CONGRESSES OF TROPICAL MEDICINE AND MALARIA Istanbul, Turkey Aug. 28-Sept. 4 Professor Dr Ihsan Sükrü Aksel Tuncel Meydan Beyoglu Istanbul Turkey General Secretary

INTERNATIONAL CONVENTION OF X-RAY TECHNICIANS Royal York Hotel Toronto Canada June 28-July 2 For information write Miss Beatrice Hurley R.T. Registrar St. Catherine Hospital East Chicago Ind. U. S. A.

INTERNATIONAL GERONTOLOGICAL CONGRESS London and Oxford England July 12-22 1954 Prof R. E. Tunbridge General Infirmary Department of Medicine The University Leeds England President

INTERNATIONAL LEPROSY CONGRESS Madrid Spain Oct. 3-10 Dr Felix Contreras Moreto 15 Madrid Spain Secretary

INTERNATIONAL NEUROLOGICAL CONGRESS Lisbon Portugal, Sept. 7-12 Prof Almeida Lima Avenida do Brazil 53 Lisbon Portugal Secretary-General

INTERNATIONAL PHYSIOLOGICAL CONGRESS Montreal Canada Aug. 31-Sept. 4 Dr A. S. V. Burgen Dept. of Physiology McGill University Montreal Canada Secretary

INTERNATIONAL PSYCHOANALYTICAL CONGRESS Bedford College Regent's Park London NW1 England July 26-30 Dr Ruth S. Eisler 285 Central Park West New York 24 N. Y. Hon. Secretary

INTERNATIONAL SOCIETY FOR THE STUDY OF BIOLOGICAL RHYTHMS Basle Switzerland Sept. 18-19 For information write Prof Dr F. Georgi Neurologische Universitäts-Poliklinik Soelnstrasse 55 Basle Switzerland.

INTERNATIONAL VETERINARY CONGRESS Stockholm Sweden Aug. 9-15 Prof Axel Isaksson Institute of Veterinary Medicine Stockholm 50 Sweden, Secretary

IRISH MEDICAL ASSOCIATION Waterford Ireland July 1-4 Dr P. J. Delaney, 10 Fitzwilliam Place Dublin Ireland Medical Secretary

LATIN AMERICAN CONGRESS OF OTORHINOLARYNGOLOGY Caracas Venezuela, Feb. 21-25 1954 Dr Victorino Marquez Reveron Centro Medico Caracas Venezuela Secretary-General

PACIFIC SCIENCE CONGRESS Quezon City and Manila Philippines Nov. 16-28 Dr Patrocilio Valenzuela College of Pharmacy University of the Philippines Quezon City Philippines Secretary-General

PAN AMERICAN CONGRESS OF THE MEDICAL PRESS Buenos Aires Argentine, July 12-16 Secretaría del Congreso 763 Uruburu Buenos Aires Argentine.

PAN AMERICAN CONGRESS OF OTORHINOLARYNGOLOGY AND BRONCHESOPHAGOGY Mexico D.F. Mexico Feb. 28-March 4 1954

PAN AMERICAN MEDICAL WOMEN'S ALLIANCE Beckman Towers Hotel New York, N. Y. Sept. 24-Oct. 1 Dr Ina Marsh 140 Linwood Ave. Buffalo N. Y. U. S. A. Registration Chairman

SECTIONAL MEETING AMERICAN COLLEGE OF SURGEONS London England, May 17-19 1954 Dr Michael L. Mason 40 East Erie St. Chicago 11, Ill. U. S. A. Secretary

WORLD CONFERENCE ON MEDICAL EDUCATION British Medical Association House Tavistock Square WC1 London England Aug. 22-29 Secretariat World Medical Association 2 East 103d St. New York 29 N. Y., U. S. A.

WORLD CONGRESS OF THE WORLD CONFEDERATION FOR PHYSICAL THERAPY London England Sept. 7-12 Miss M. J. Neilson Chartered Society of Physiotherapy Tavistock House South Tavistock Square London WC1 England Secretary

WORLD MEDICAL ASSOCIATION The Hague Netherlands Aug. 31-Sept. 7 Dr Louis H. Bauer 2 East 103d St., New York 29 N. Y. Secretary General.

DEATHS

Randall, James Augustus ♂ Captain, U S Navy, retired, Coronado, Calif, born Nov 21, 1877, Atlanta College of Physicians and Surgeons, 1901, fellow of the American College of Surgeons, commissioned in the medical corps of the U S Navy June 26, 1903, prior to World War I served aboard the battleships Maine and Kentucky, at naval hospitals in the United States, and a two year tour of duty at the Naval Hospital, Canacao, Philippine Islands, during World War I served as the senior medical officer aboard the battleships Minnesota and Utah, and in September, 1919, was serving at the Naval Hospital in Philadelphia, attended War College at Newport, R I, and on two occasions served at the Naval Hospital, Washington, D C, on Jan 8, 1936, reported to the Fifth Naval District Headquarters as district medical officer and served there until Nov 28, 1939, from this assignment reported to the Navy Department as the president, board of medical examiners and naval examining board for officers of the medical corps, served in this assignment until Dec 1, 1941, having reached the statutory retirement age at that time, was placed on the retirement list of officers of the Navy, during World War II from July 24, 1943, to July 1, 1945, served on active duty as the officer in charge, Navy V-12 Unit, University of California, at Los Angeles, on Aug 2 1945, was released to inactive duty, died in the Naval Hospital, San Diego, April 23, aged 75

Barr, Robert Haynes ♂ Owensboro, Ky, born in Rome, Ky, Jan 24, 1902, University of Pennsylvania School of Medicine, Philadelphia, 1927, president of the Kentucky State Medical Association, secretary for one term and president for two terms of the Daviess County Medical Society, won a battle field promotion to colonel in the Army Medical Corps during World War II, for many years a member of the city board of education, and surgeon for the Louisville and Nashville Railroad, past president of the Chamber of Commerce, affiliated with Our Lady of Mercy Hospital and the Owensboro Daviess County Hospital where he died May 5, aged 51, of coronary disease

Paul, John Davis ♂ Philadelphia, born in 1891, University of Pennsylvania School of Medicine, Philadelphia, 1915, member of the American Society of Clinical Pathologists, formerly assistant secretary treasurer of the Medical Society of the State of Pennsylvania and secretary of the Philadelphia County Medical Society served in France during World War I, for many years affiliated with Misericordia Hospital and St Christopher's Hospital, on the staff of the Germantown Hospital and medical director of the Stetson Hospital, died in Eagleville (Pa) Sanatorium for Consumptives Feb 23, aged 61 of coronary disease

McNattin, Robert Franklin ♂ Chicago, Washington University School of Medicine, St Louis, 1928, specialist certified by the American Board of Radiology, member of the Radiological Society of North America, American College of Radiology, and the American Radium Society, formerly on the faculty of the Cook County Post Graduate School of Medicine and on the staff of the Cook County Hospital in 1946 named director of the then newly created cancer division of the Pennsylvania State Department of Health in Harrisburg, died May 9, aged 50

Telfer, Gavin James, Montrose, Calif, born in Detroit May 21, 1880, University of California Medical School, San Francisco, 1907, an officer of the U S Public Health Service in San Francisco during the plague control campaign of 1907-1908, served with the California State Department of Public Health for 28 years until his retirement in 1947 as senior epidemiologist, instrumental in the organization of many of the county health departments in California, died in Sacramento recently, aged 69, of intestinal obstruction and arteriosclerotic heart disease

Adcock, John Delbert ♂ Ann Arbor, Mich, University of Pennsylvania School of Medicine, Philadelphia, 1935, specialist certified by the American Board of Internal Medicine, assistant professor of internal medicine at the University of Michigan Medical School, at one time on the faculty of his alma mater, fellow of the American College of Physicians, member of the American Trudeau Society, affiliated with the University Hospital, died May 10, aged 44

Ahrens, Adolph Henry ♂ Sandstone, Minn, the Hahnemann Medical College and Hospital, Chicago, 1910, affiliated with St Luke's Hospital in St Paul and Sandstone State Hospital, died April 13, aged 71, of cerebrovascular accident

Allen, Edgar Dempsey, Crooksville, Ohio, Starling Medical College, Columbus, 1900, vice president of the Perry County Medical Society in 1922 and in 1937 and president in 1925, died April 12, aged 74

Allen, Francis Olcott, Secane, Pa, University of Pennsylvania Department of Medicine, Philadelphia, 1900, died April 13, aged 78

Baker, Albert Sherburne, Honolulu, Hawaii, Harvard Medical School, Boston, 1899, died Feb 22, aged 82

Barbee, George S, Zebulon, N C, University of North Carolina School of Medicine, Chapel Hill, 1910, died March 14, aged 66, of cerebral hemorrhage and hypertension

Barker, Vincent Leland ♂ Monroe, Mich, Indiana University School of Medicine, Indianapolis, 1928, past president of the Monroe County Medical Society, fellow of the American College of Surgeons, served in the U S Navy during World War II, on the staff of Mercy Hospital, president of the school board, died in Grace Hospital, Detroit Feb 28, aged 50, of ruptured aneurysm of the circle of Willis

Barnebee, James Hosea, Mission, Texas, Rush Medical College, Chicago, 1902, died March 31, aged 77

Bass, Rose Dina, East Orange, N J, Woman's Medical College of Pennsylvania, Philadelphia, 1926, served as treasurer of the New Jersey Branch of the American Medical Women's Association in charge of the venereal disease section of the Public Health Clinic in Newark for 15 years before his retirement in 1943, associate in the department of endocrinology at the Newark Beth Israel Hospital, died April 15, aged 50, of rheumatic heart disease

Bazell, David Louis ♂ Pittsburgh, University of Pittsburgh School of Medicine, 1911, died April 5, aged 66, of brain tumor

Beers, Charles William ♂ Muskegon, Mich, Detroit College of Medicine and Surgery, 1933, on the staffs of the Hackley and Mercy hospitals, died in Death Valley, Calif, March 28, aged 58, of coronary occlusion

Belzer, Laurence Melvin, Buffalo, University of Buffalo School of Medicine, 1912, served in France during World War I, affiliated with Deaconess Hospital, physician for the public schools, died in the VA Hospital March 20, aged 62, of arteriosclerotic heart disease

Bennett, James, Meridian, Miss, Hospital College of Medicine, Louisville, Ky, 1904, affiliated with Anderson Infirmary and St Joseph Hospital, died April 10, aged 80, of coronary artery thrombosis

Blue, James Howard ♂ Bessemer, Ala, University of Alabama School of Medicine, 1913, died March 10, aged 63, of an accidental gunshot wound

Caldwell, Burnie R, Coral Gables, Fla, University of the South Medical Department, Sewanee, Tenn, 1900, member of the Medical Society of Virginia served during World War I, died in the VA Hospital March 22, aged 75, of coronary occlusion

Carper, James Claibourne ♂ Baltimore, Howard University College of Medicine, Washington, D C, 1905, died in Washington, D C, Feb 23, aged 77, of carcinoma of the liver

Caster, John Leslie ♂ Los Angeles, University of Southern California School of Medicine, Los Angeles, 1944, member of the American Academy of General Practice, on the staffs of the Presbyterian and California hospitals, died in Balboa, Calif., April 2, aged 37, of coronary thrombosis

Collins, James Joseph ♂ Galena, Ill., Marquette University School of Medicine, Milwaukee, 1935, died in Mercy Hospital, Dubuque, Iowa, April 2, aged 47, of malignant hypertension

Cooper, Denton John ♂ Hillsboro, Ore., Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1903, member of the Montana Medical Association, died March 25, aged 81

Corrigan, John Edwin ♂ Excelsior, Minn., University of the City of New York Medical Department, 1892, fellow of the American College of Surgeons, died March 30, aged 87

DeLand, Charles Airmet ♂ Warren, Mass., Harvard Medical School, Boston, 1885, died in Worcester April 26, aged 93

Denny, Chester Hampton ♂ Creve Coeur, Mo., Washington University School of Medicine, St. Louis, 1927, served in the South Pacific during World War II, affiliated with Missouri Baptist Hospital in St. Louis, where he died March 21, aged 50, of coronary disease

DeNormandie, Robert L. ♂ Lincoln, Mass., Harvard Medical School, Boston 1902, specialist certified by the American Board of Obstetrics and Gynecology, member of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons, fellow of the American College of Surgeons, formerly medical consultant to the Maternal and Child Welfare Division of the Children's Bureau, U S Department of Labor, served on the staff of Waltham (Mass.) Hospital, died in Reading, Vt., April 20, aged 76, of coronary occlusion

Doupe, Rupert Gilpin, Sherman Oaks, Calif., Western University Faculty of Medicine London Ontario, Canada, 1915, died in Queen of Angels Hospital in Los Angeles, March 21, aged 62, of heart failure

Edlich, Theodore Julius, Manhasset, N Y., Cornell University Medical College, New York, 1902, formerly a pharmacist, died in Manhasset Medical Center Hospital April 24, aged 80, of bronchopneumonia and cerebral thrombosis

Fitzgerald, John Bertram ♂ Chicago, Northwestern University Medical School Chicago, 1928, associate in the department of surgery at his alma mater; specialist certified by the American Board of Surgery, fellow of the American College of Surgeons, medical officer during World War I, examiner for the Selective Service Board during World War II, on the staff of St. Joseph's Hospital, died April 26, aged 54, of acute myocardial infarction, arteriosclerosis, and chronic glomerulonephritis

Gaskins, Don Carlos, Bentonville, Ohio, Eclectic Medical College, Cincinnati, 1922, served during World War I, died in Harding Sanitarium, Worthington, Feb 24, aged 59

Hanson, Ralph ♂ Spokane, Wash. Rush Medical College, Chicago, 1890 served on the staff of the Deaconess Hospital, died April 4 aged 86, of diabetes mellitus and encephalomalacia

Hart, Benjamin Ide ♂ Bridgeport, Conn. Columbia University College of Physicians and Surgeons New York 1904, died April 9, aged 72

Heinrichs, Julius Clay ♂ St. Louis Missouri Medical College, St. Louis, 1899, affiliated with Christian Hospital, where he died March 29 aged 76, of bronchopneumonia

Hercik, William Louis, Chicago, College of Physicians and Surgeons of Chicago School of Medicine of the University of Illinois, 1910 died in the VA Hospital, Hines, Ill., April 3, aged 66, of hepatorenal failure

Jones, William McKinley, Chicago, Chicago Medical School, 1926, served during World War I, died April 21, aged 55, of coronary heart disease

Keith, Archibald Magruder ♂ Greenville, Ill., Kansas City (Mo.) Hahnemann Medical College, 1907, St. Louis College of Physicians and Surgeons, 1908, served as mayor of Greenville, died in the Mark Greer Hospital, Vandalia, March 9, aged 81

Kelly, Joseph Ignatius ♂ Burlington, Iowa, Keokuk Medical College, College of Physicians and Surgeons, Keokuk, Iowa, 1901, for many years company surgeon for the Burlington Railroad, died in Fort Myers, Fla., March 28, aged 80, of burns received as a result of the explosion of a gas stove

Klippel, Edward Theodore ♂ St. Louis, St. Louis College of Physicians and Surgeons, 1910, died in the Jewish Hospital March 11, aged 69

Kreutzer, Carl Robert, Salem, Ohio, University of Kolozsvar, Hungary, 1915, died in the City Hospital Feb 3, aged 64

Lampe, Albert Victor ♂ Philadelphia, University of Pennsylvania Department of Medicine, Philadelphia, 1907, died April 14, aged 74

Lemke, Albert R., Chicago, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1899, assistant surgeon for the Chesapeake and Ohio Railroad, served on the courtesy staff of the Henrotin Hospital, died May 11, aged 76, of cancer

Leslie, Lawrence Webb ♂ Chicago, Northwestern University Medical School, Chicago, 1948, served during World War II, died March 27, aged 28

Long, Arthur D. ♂ El Paso, Texas, University of Arkansas School of Medicine, Little Rock, 1909, member of the American College of Chest Physicians, died in Our Lady of the Lake Sanitarium, Baton Rouge, La., Feb 15, aged 69, of cardio-respiratory failure and asthma

Lyon, Paul Tiffy ♂ Chicago, Northwestern University Medical School, Chicago, 1903 on the staff of the Garfield Park Community Hospital, where he died May 6, aged 74, of cerebral hemorrhage

McLaren, Jennette Matilda ♂ Minneapolis University of Michigan Department of Medicine and Surgery, Ann Arbor, 1887, an Associate Fellow of the American Medical Association, died in Fairview Hospital April 5, aged 95

Modica, Charles, New York City, Loyola University School of Medicine, Chicago, 1936, also a graduate in pharmacy, on the staff of the Manhattan General Hospital, where he died April 4, aged 50, of pulmonary embolism and myocardial infarction

Murphy, Charles Edgar, Finley, Ky., Kentucky University Medical Department, Louisville, 1904, died April 12, aged 72, of arteriosclerosis and diabetes mellitus

Overholser, Charles ♂ Dayton, Ohio, Ohio State University College of Medicine, Columbus, 1911, on the courtesy staff of Miami Valley Hospital, where he died April 18, aged 75, of coronary occlusion

Pfaff, John Alfred ♂ Indianapolis Medical College of Indiana, Indianapolis, 1898 professor emeritus of gynecology at Indiana University School of Medicine, member of the staffs of Coleman, St. Vincent's General Robert W Long, and Methodist hospitals, died Feb 7 aged 83, of heart disease

Roberts, William Pusey, Phoenix, Ariz. Jefferson Medical College of Philadelphia, 1903, formerly practiced in Brooklyn, where for many years he was on the staff of the Prospect Heights Hospital, died Feb 26, aged 80, of heart disease

Rosen, Marks Julius, North Hempstead, N Y., University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1928 died Feb 23, aged 49, of myocardial infarction and diabetes mellitus

Truex, William Elmer, Syracuse, N Y., Syracuse University College of Medicine, 1911, died Feb 10, aged 69, of coronary thrombosis

Wagner, Adam Franklin, Greenville, Mo., Kentucky School of Medicine, Louisville, 1897, died March 25, aged 84

FOREIGN LETTERS

ARGENTINA

Congress of Industrial Medicine—The Second National Congress of Medicine and Social Assistance of Workers was held in Mendoza March 19-25. The congress was organized by the national secretary of public health. All the physicians of Argentina received an official invitation to take part in this meeting. The official program consisted of medical and social questions that were distributed for discussion by 14 committees. The principal discussion topics were assistance and social service for labor, the physiopathology of work and fatigue, forensic and social aspects of industrial medicine, rehabilitation, psychological technique and professional orientation, hygiene and security, preventive and social medicine and dentistry, sanitary statistics, medical care in industry, nutrition of workers, work of women and children, sanitary education, and economic problems in relation to workers. For 10 days the members of the congress attended congress meetings and public ceremonies, parties, promenades, banquets, and the traditional vintage festivities (Fiesta de la Vendimia) in Mendoza, principal center of the grape and wine industries in Argentina.

Changes in Medical Professorship—Without any previous announcement, Dr Juan P. Garrahan, professor of pediatrics, was dismissed from his position by the council of the medical school of Buenos Aires. No reason was given for this dismissal, and the official explanation was that, since Dr Garrahan had served in governmental offices in different capacities for more than 30 years, he deserved a retirement assignment. He is 59 years old. Dr Garrahan was a very efficient teacher, and many of the most outstanding young pediatricians were his pupils. His book on pediatrics is the official text in most of the South American medical schools. Some years ago, Dr Garrahan resigned his position of professor but the authorities of the medical school asked him to remain in his position. Dr Gonzalo Bosch, professor of psychiatry, was also dismissed after a long career in the medical school.

Physicians who have successfully fulfilled the university requirements for proof of ability and have been selected by special juries have not been appointed as assistant professors if they were not enrolled in the Peronista Party and had not signed a petition for the reelection of Gen. Juan Peron as president of the republic.

Overcrowding in the Medical School—More than 7,000 students have been accepted for the first course of the Faculty of Medicine of the University of Buenos Aires in 1953. More than 900 students are enrolled for the course in pathological anatomy. Practical teaching will be extremely difficult under these conditions. Many years ago the council of the medical school voted to limit the number of students to be accepted according to the adequacy of the teaching facilities. This decree has been rejected by the superior university council on the grounds that it is undemocratic. In the last few years many rules for the selection of students have been abolished. All selective and entrance examinations as well as all fees were recently abolished. Many persons are now accepted who have had no previous high school training, such as former army officers and teachers.

Anesthesiology—The secretary of public health of Buenos Aires has stated that from now on anesthesiology should be considered a specialty in its own right. For many years most of the largest hospitals have had departments of anesthesiology, and one municipal school of anesthesiology has been founded for the training of physicians and technicians in this special field.

COLOMBIA

National Congress of Neurology and Psychiatry—The first National Congress of Neurology and Psychiatry was held in Bogotá, Feb. 26 to March 1, 1953. The congress was organized by the Sociedad de Psicopatología, Neurología y Medicina Legal of Bogotá with the collaboration of the secretary of the Ministry of Hygiene. About 60 neuropsychiatric delegates of the departments of Antioquia, Bolívar, Cauca, Valle, North Santander, Atlántico, and Caldas, as well as all the neuro-psychiatric specialists in Bogotá, attended the congress. Dr A. Jiménez Arango, secretary of the Ministry of Hygiene and professor of neurosurgery of the Faculty of Medicine of the National University, was honorary president. Dr G. Uribe Cualla, professor of legal medicine and of forensic psychiatry of the Faculty of Medicine of the National University, and Dr J. J. Calderón Reyes were president and general secretary of the congress, respectively. Official topics were "Narcoanalysis," discussed by Dr Uribe Cualla of Bogotá, "Lobotomy" by Drs M. Camacho Pinto of Bogotá and L. C. Posada of Medellín, "Insulin Therapy" by Dr L. J. Sánchez, and "Psychiatric Legislation for Colombia" by Drs J. Asuad and H. Vergara of Bogotá. Drs Camacho Pinto and Posada reported the results of lobotomy in nearly 100 cases. Dr Sánchez, the head of the Hospital for the Male Insane in Bogotá, reported the results during the last 10 years with Sakel's insulin shock therapy of schizophrenia and other psychoses. Drs Asuad and Vergara pointed out the need for psychiatric laws in Colombia and proposed statutes and regulations to be used in neuropsychiatry. Among the scientific articles read before the congress the papers read by the delegation of Antioquia deserve special mention, particularly those of Drs A. P. Rodríguez Pérez, R. Londoño, and S. Castaño. Their papers dealt with the histology and histopathology of the nervous system and are the results of work carried on by the authors in the department of histology and neuroanatomy of the Faculty of Medicine of Medellín. These articles offered new viewpoints on the knowledge of the structure of the synapsis, the functional significance of neuroglia, and the mechanism of nervous conduction. The 32 scientific articles that were read before the congress will be published in a volume in the near future. The congress was a success, both because of the large number of neuropsychiatrists present and because of the excellent quality of the articles. The conclusions embody the establishment of proper steps for more unification of neuropsychiatrists and the preparation of laws to be used and the description of procedures to be followed in order to improve the services of mental hygiene and of psychiatric assistance in the country. The next congress will be held in Medellín in 1954.

National Convention of Surgeons—The Second National Convention of Surgeons was held in Medellín, April 12-18. The convention was organized by the Capítulo de Cirujanos de Antioquia, which is a branch of the Colegio de Cirujanos de Colombia, an affiliate of the International College of Surgeons. Official topics in the special fields of surgery and general surgery were as follows: in gynecology, surgical treatment of genital prolapse, in urology, surgery of the prostate, in pediatrics, surgery of harelip, in orthopedics and wound surgery, intramedullary nailing and surgery of the hip joint, in neurosurgery, surgery of pain, and in ophthalmology and otorhinolaryngology, surgery of cancer and of the sense organs. A large number of articles were also read. More than 157 surgeons from various regions of the country were present. Dr Gordon Gordon Taylor, the distinguished cancerologist of Great Britain, attended the meeting on a special invitation from Colombian surgeons. Some problems of professional interest were discussed, including the establishment of the Colegio de Cirujanos in certain regions of the country in which it has

not been as yet established. Simultaneously with the aforementioned meeting, the first meeting of the Médicos del Tórax (American College of Chest Physicians) was carried on with a special program.

Death of Dr G. Toro Villa.—Dr G. Toro Villa of Antioquia died Jan. 16, 1953, in Medellín, aged 74. He graduated from the Faculty of Medicine of the National University of Colombia and served as professor of parasitology, bacteriology, and tropical clinical medicine for almost 40 years in the Faculty of Medicine of the University of Antioquia. Later he became the dean of the faculty. He was a member of the *Academias de Medicina* of Bogotá and of Antioquia, the American College of Cardiology, and honorary president of the *Asociación Médica Antioqueña*. He published several interesting articles on jungle yellow fever in collaboration with Dr R. Franco and Martínez Santamaría, including the first description of this variety of yellow fever. He also published several articles on cardiology and tropical diseases.

Personal.—Dr J. del C. Acosta, of Colombia, was appointed president of the *Confederación Médica Panamericana* for 1953-1954. Dr Acosta is scientific director of the Hospital de San Juan de Dios of Bogotá, president of the *Academia Nacional de Medicina*, and president of the *Federación Médica Colombiana*. Formerly he was professor of obstetrics and dean of the Faculty of Medicine of the University of Bogotá. The next meeting of the *Confederación Médica Panamericana* will be held in Colombia in 1954.

ITALY

Surgical Treatment of Cancer of Uterus.—Professor Inguilla discussed the surgical treatment of cancer of the uterus at a meeting of the Filippo Pacini Medical Academy of Pistoia on Feb. 1. The main problem in surgical treatment of cancer of the uterus lies in the fact that this neoplasm invades the pelvic connective tissue early in the course of the disease, more rarely invades the lymph nodes of the pelvis, and only exceptionally diffuses outside the pelvis. Therefore, a surgical technique limited to simple removal of the uterus must be considered definitely unsuitable and contraindicated. On the other hand, only those surgical procedures that remove the connective tissue of the pelvis along with the uterus and possibly the pelvic lymph nodes should be considered.

Many years ago the Vienna Gynecological School elaborated two surgical techniques to be used in this condition, i. e., Wertheim's abdominal method and Schauta's vaginal method. Both these techniques aim at the simultaneous removal of the uterus and the pelvic connective tissue, with the abdominal operation, however, metastatic invasion of the pelvic lymph nodes may also be detected. For this reason many surgeons prefer the abdominal approach, although some have always supported the vaginal approach.

In Florence the vaginal approach has been used during the last two years, with a modification developed by the Viennese gynecologist Amreich. This technique permits more extensive removal of the pelvic connective tissue, and it has proved less painful for the patient than the abdominal method.

The problem of the lymph nodes, which is not solved with the vaginal intervention, has been dealt with in Florence by a second operation aimed at removal of the entire chain of lymphatic tributaries to the cervix uteri. With these two operations the problem of cancer of the cervix uteri is solved more completely than with either of the two classical methods of Wertheim and Schauta.

In the United States a few years ago Meigs elaborated a technique that is a significant improvement over Wertheim's abdominal operation. By Meigs' method the problem of the pelvic connective tissue and of the lymph nodes is solved simultaneously with one operation only. There is in the United States today a tendency toward surgical intervention in all cases, even in those in which the tumor has diffused to such an extent that there can be no hope for a definitive recovery. In such cases the operation provides the only possibility, however slight, of improvement and perhaps recovery. Because of

extension of the tumor, the surgeon may be compelled to remove the bladder and the rectum in addition to the uterus if they are invaded by the tumor. On the grounds that surgery offers the only hope for cure, it is understandable why in the United States surgical intervention is suggested for all cases of cancer of the uterus. The extent of the tumor and the general condition of the patient determine the best method to be used, which is always the most radical indicated. Only by following these criteria can the surgeon affirm today that he is really employing up-to-date surgical treatment of cancer of the uterus.

In the discussion that followed, Professor Facchinelli-Mazzoleni said that he was glad that tumors of the uterus were again being treated surgically but that radiotherapy should not be abandoned. To prove his point, he cited statistics on the results obtained with radiotherapy alone and showed how the results equal those obtained with the latest surgical methods. Radium therapy should always be combined with roentgen therapy, and the best results will be achieved in the cases in which there has been the best collaboration between the surgeon and the radiologist.

Professor Inguilla's conclusions leave the choice of surgical treatment by the vaginal or the abdominal approach open. The abdominal route permits a wide pelvic operative field and enables the surgeon to visualize all the parauterine connective tissue and lymph nodes. The abdominal route simplifies the mobilization of the ureters in the laterocervical segment in which this cancer is usually enclosed and compressed between infiltrated tissue. This stage of the operation, which must be considered of major importance in prolonged abdominal hysterectomy, is also made easier by the ligation of the two hypogastric arteries. The speaker, who always ligates these two arteries at their point of origin, has been able to decrease the mortality rate to 2.5% in the last 46 patients that he operated on. This, however, does not exclude the fact that the vaginal approach also has its indications, especially in patients with early cancer of the cervix uteri.

Diagnosis of Pulmonary Diseases.—At the meeting of the Medical Society of Mantua on Dec. 13, 1952, Professor Poltronieri discussed the importance of clinical, radiological, bronchographic, and bronchoscopic methods in diagnosis of pulmonary diseases and especially of neoplasms of the lung. Cancer of the lung is becoming more frequent and in most cases is bronchogenic. The clinical course depends on the location of the primary tumor and is manifested in two syndromes, that due to intrabronchial tumor and that due to extrabronchial tumor.

The first syndrome assumes the characteristics of bronchial stenosis, which, if complete, produces the symptomatology of pulmonary atelectasis and, if incomplete, that of expiratory emphysema. The second syndrome, which occurs when the tumor originates in the small terminal bronchi and expands into the surrounding pulmonary tissue, has the clinical characteristics of parenchymal thickening. On the basis of these distinctions, the speaker discussed the findings that can be seen during clinical, radiological, bronchographic, and bronchoscopic observations. After presenting serial roentgenograms of patients selected from a group of 30 with pulmonary tumors, Professor Poltronieri emphasized the necessity of an early tentative diagnosis of pulmonary neoplasm and early collaboration between the intern, the radiologist, and the bronchoscopist. This cooperation may by itself lead to an exact diagnosis and to early therapeutic intervention.

Mortality Due to Infectious Diseases.—During the first eight months of 1952 the deaths caused by infectious and parasitic diseases in the 25 Italian cities with populations of more than 100,000 numbered 4,935 as compared to 6,075 during the same period in 1951. The mortality rate for typhoid and paratyphoid increased from 178 to 197 cases, for tuberculosis of the respiratory tract it decreased from 3,768 to 2,530 cases, for the other forms of tuberculosis it decreased from 693 to 580, and for syphilis it increased from 282 to 314. According to the National Institute of Statistics, 237,469 males and 229,566 females died in Italy during the year, 7,903 more male than females died. From the November, 1951, census it appears that in Italy the female population exceeds the male population by about 1 million persons.

LONDON

B M A Annual Report of Council—In the recently published annual report of Council of the British Medical Association for 1952-1953 it was reported that the Queen has granted her patronage to the association, also it was recommended that at the next annual meeting of the representative body the Duke of Edinburgh be elected an honorary member of the association. Another recommendation that will be unanimously adopted is the election of Dr T C Routley of Toronto as president of the association for 1955-1956, to coincide with the joint annual meeting of the B M A and the Canadian Medical Association, which is to be held in Toronto in June, 1955.

A critical note is sounded in the council's comments on the reception accorded the report in "General Practice and the Training of the General Practitioner," prepared by a special committee of the association and published in 1950. This report was distributed to the 220 divisions of the association, but by last spring only 45 divisions had sent in any observations, and the representative body, at its annual meeting last year 'deplored the apparent apathy of the Divisions.' The remaining 175 divisions were sent another circular, asking for a statement as to what action the divisions had taken. The council now reports that 15 of these divisions sent in comments, 28 reported that they have no comments, and 36 mean to consider it at future meetings. This means that practically 100 divisions have not replied, a sign of little interest among the general practitioners of the country in the future of general practice.

Concern is expressed at the increasing number of actions for alleged negligence brought by patients against hospital authorities and members of their medical staffs. A complicating factor at the moment is the policy of the Ministry of Health that, in cases in which a hospital board or committee is to be made liable for the alleged negligence of a member of its medical staff, the board (or committee) should try and obtain a contribution from the practitioner concerned in respect of any damages awarded. In the words of the report, "This makes it difficult for hospital medical staffs to co-operate with their authorities as fully as they would wish, since by so doing they may furnish the authority with information that will subsequently be used against them in pursuance of the Ministry's policy." It is reported that discussions on this point are proceeding with the Ministry, and the hope is expressed that a satisfactory arrangement will soon be reached.

On the increasingly difficult problem of retiring ages, the council is hesitating. A resolution of the representative body last year drew attention to the discrepancy between the retiring age for consultants (65) and that for general practitioners (70) and expressed the view that this difference is contrary to national policy, 'which maintains that those over 65 should remain at work as long as they continue to carry out their duties efficiently.' To this the council replies that 'any general departure from the present agreed policy would be bound to have serious repercussions upon the prospects of promotion for junior members of hospital staffs, and in particular for the present body of senior registrars.' Membership of the association in the United Kingdom increased from 66,064 at the end of 1951 to 67,905 at the end of 1952, this represents 74% of the total profession and 84% of the working profession.

The council has rejected a petition for the formation of a group of medical hypnotists. Under the scheme for the exchange of members of the American British and Canadian medical associations five British physicians visited Canada and the United States during 1952-1953. The following paragraph speaks for itself: 'The Council in September, 1952, sent an invitation to the Presidency of the Academy of Sciences of the U S S R for six Soviet doctors to pay a good will visit to Great Britain. The reply received expresses thanks for the invitation and states that unfortunately it is not possible to send a delegation to this country at the present time.'

Indirect Methods of Advertising—As an appendix, the council published a revised version of its statement on indirect methods of advertising, which was first published in 1925. On the subject of broadcasting and television the association "accepts the view that medical practitioners who possess the necessary knowledge and talent should be permitted to

participate in radio and television programmes, provided they ensure the observance of appropriate ethical safeguards." Attention is drawn to the resolution adopted by the representative body in 1951, in which it was mentioned that 'practitioners approached to appear in such programmes, whether for 'sound' or 'visual' broadcasting, should insist on anonymity as part of the contract.' Anonymity for this purpose is now defined as 'withholding the publication or announcement of the practitioner's name, or any information, such as particulars of the appointments he holds, which might enable the public to identify him.' It is pointed out that, 'Unless a practitioner insists on anonymity he is not only offending against the ethical principles of the profession but is placing himself in danger of being accused of violating the Warning Notice of the General Medical Council,' i.e., being struck off the *Medical Register*. The possible development in Great Britain of commercial television lends importance to the statement that 'it is unethical for a practitioner to participate in sound or television programmes which are being presented for, or on behalf of, firms using sponsored radio as a means of advertising.'

It is considered to be a 'wise precaution' for a practitioner about to deliver a public lecture "to request the chairman beforehand to be circumspect in any introductory remarks concerning his status as a speaker. Special precautions are necessary when it is known in advance that a press reporter will be present." Before participating in discussion on medical matters in the lay press, practitioners 'must make it a condition of publication that laudatory editorial comments or headlines relating to the contributor's professional status or experience shall not appear.' Cautionary advice is given on the dangers of granting press interviews, and "A practitioner's photograph appearing in connexion with an interview or an article published in the lay press is a most undesirable form of publicity."

Survey of Prescribing—Prof D M Dunlop and his colleagues, of the department of therapeutics in the University of Edinburgh have published an analysis of 18,848 prescriptions, which is a 1% sample (approximately) of all National Health Service prescription forms issued in Scotland during the month of October, 1951 (*Brit Med J* 1:694 [March 28] 1953). Vitamins, tonics, and 'symptomatic remedies,' i.e., sedatives, hypnotics, analgesics, cough mixtures, stomachics, and laxatives, constituted 51.6% of all prescriptions written. Their comments on this are: 'A large proportion of these drugs must be prescribed as placebos. They are often relatively cheap in themselves, yet the total cost of compounding and packing them is relatively enormous. Thus, if the cost of prescriptions to the State is to be diminished it must be directed to a reduction of these symptomatic remedies as well as to extra vagant prescriptions of expensive drugs to which so much attention has been directed in the past.' The over all proportion of proprietary preparations was 30%. Bromides alone were prescribed very rarely, only 1% of prescriptions, however, concern is expressed that in combination with chloral hydrate they were prescribed on 40 occasions, which means that 4,000 such prescriptions must have been issued in Scotland during this particular month. Compound cough mixtures containing sedatives and expectorants were ordered as often as sedative preparations but purely expectorant cough mixtures were not ordered as often as either. The proportion of prescriptions for cough mixtures was higher in urban than in rural areas for instance, in the city of Aberdeen they represented 12.4% of prescriptions, compared with 7.7% in the remainder of this region, which is almost entirely rural.

Vitamins were prescribed more often than iron and constituted about 5% of all prescriptions. On the basis of the number of prescriptions for vitamins in this survey, it is estimated that over one million prescriptions for vitamins are issued every year. This, in turn, leads to an estimated annual cost for vitamin prescriptions alone in Great Britain of at least 2 million pounds. 'This estimate,' comments Professor Dunlop 'is intentionally a very conservative one,' and he goes on to say 'It is probably that only a very small proportion of the vitamin prescriptions representing this vast sum serve any very useful purpose.' When it is recalled that, owing to the present financial position of the country, health centres

cannot be built and that all hospital boards are being faced with serious difficulties as regards the staffing and general administration of their hospitals, these figures applied to vitamins alone, quite apart from other placebo prescriptions, deserve serious consideration."

In view of the relative incidence of pernicious anemia, diabetes mellitus, and heart failure, it is interesting to note that liver extract was ordered 125 times, insulin 97 times, and digitals 134 times. Even more curious is the fact that folic acid was ordered 32 times. "When it is recalled that this drug should be used only in tropical sprue and in some rare cases of megaloblastic anaemia, such as the megaloblastic anaemias of the malabsorption syndrome and pregnancy, and that it is absolutely contraindicated in pernicious anaemia some 3,000 prescriptions for it a month in Scotland would seem to be excessive."

Trichomonas Vaginalis.—Two contributions to the *Lancet* (1 668 and 698 [April 4] 1953) throw interesting sidelights on the perpetually recurring problem of the source of infection with *Trichomonas vaginalis*. F. Lanceley and M. G. McEntegart infected five volunteer male inpatients per urethram with 2 ml. of an inoculum containing about 2 million *T. vaginalis* per ml. To exclude nonspecific reactions due to the culture medium, five other volunteers were injected in the same manner with the same amount of sterile culture medium. None of this control group showed any evidence of urethral irritation or infection during the three weeks during which they were under observation. In three of the five infected with virulent *T. vaginalis* urethritis developed, from which the protozoa were recovered, in the other two a mild transient urethritis developed but no trichomonads were ever recovered during the three weeks the patients were under observation. Attention is drawn to the fact that 'examination of carefully taken urethral scrapings often revealed trichomonads when they could not be demonstrated by any other method. The importance of this technique both as a test of cure and in the investigation of suspected cases is evident, for it is almost certain that, so long as active protozoa persist, the patient can transmit the infection.' All showed evidence of a mild urethritis in the first 24 hours, but trichomonads were never found before the sixth to the ninth day after inoculation. This suggests that patients with non specific urethritis should be investigated for *T. vaginalis* on several occasions over a period of 7-10 days after the probable date of infection. Only one patient complained of symptoms, and these were trivial. In two of the patients a mild prostatitis developed and trichomonads were demonstrable in the prostatic fluid. The infection appeared to be self limiting, and the period during which protozoa could be found varied from 4 to 94 days. Examination of the serums failed to demonstrate an antibody to the protozoa.

According to W. McK. H. McCullagh, 13% of hospital gynecologic patients and 11% of private gynecologic patients in the London area are infected with *T. vaginalis*. If this figure applies to the whole of England and Wales, then there were 41,000 new cases last year, since there were 314,843 new gynecologic outpatients in England and Wales in 1952. McCullagh contends that the main cause of *T. vaginalis* infection is the ordinary lavatory seat. He points out that the trichomonads can live on a moist swab for days if kept warm and moist. On the inner front lip of a lavatory seat, it need not live so long to infect subsequent cases. The author was informed by the medical officer of health for a central London borough that in peak hours a toilet seat in a women's public lavatory may be used by up to 60 women in an hour. In support of his thesis he states that many patients first report for treatment after their return from a summer seaside resort, where they stayed in crowded boarding houses. Prevention, therefore, lies, he contends, in the mass adoption of the gap seat, particularly in girls' schools, railway stations, women's institutions, and lavatories for female hospital patients. He adds, 'Active interest on the part of the general practitioners and specialists in women's diseases would greatly aid medical officers of health in forcing through this much needed reform to introduce the non infecting lavatory seat. London will be crowded with visitors this summer, and action is needed now.'

PARIS

Congress for Angiology and Histopathology.—The first Congress for Angiology and Histopathology was held in Paris Oct. 14-16, 1952, under the presidency of Professor Cailliau. Abnormal capillary function was the principal subject. Burstein (Paris) read a paper on experimental pharmacodynamics and disturbances of vasomotor function. V. Jabonero (Oviedo) discussed the efferent innervation of the vascular walls. He explained that the autonomy of the nervous system of the vascular wall depends on the neural relay along the vessels, which, according to Leriche and others, makes the vascular nerve system partly independent of the central nervous system. The author used several staining techniques but got the best results with Masson's argentic technique performed at high temperature, followed by Cajal's technique performed at a low temperature.

B. N. Halpern (Paris) reported on abnormal capillary permeability. The importance of the problem derives from the fact that all fluid exchanges between tissues depend essentially on capillary permeability. Fluids pass unceasingly through capillary membranes in both directions, bringing nutritive elements to the tissues and removing the wastes of metabolism.

The permeability of a membrane by a given substance is expressed in terms of the amount of the substance that filters through a given surface unit of the membrane during a given unit of time under unvarying conditions of hydrostatic and osmotic pressures. According to Halpern, indirect measurement of this permeability is very difficult. In discussing the various forms of edema, he explained the difficulty of the problem. He compared the usual levels of protein in the fluid in several types of edema, which were as follows: in nephrotic edema 10 mg per 100 cc, in nephritic edema 40 to 60 mg, in nutritional edema 10 mg, in cardiac edema 30 to 50 mg, in Quinck's edema 310 mg and in acute pulmonary edema 300 to 600 mg. He stressed that it is difficult to explain these differences. The author believes that, when the protein content of edema fluid is high, a qualitative alteration of the capillary membrane and particularly of the intercellular substance, which loses its effectiveness, is to be assumed.

Lemaire, Loeper, and Housset (Paris) reported a study of the arteriolar and capillary circulation in man. They described a new photographic and plethysmographic method of measuring this circulation. The technique offers a double advantage: its field of exploration is limited only to the cutaneous arteriolar and capillary circulation and it allows the measurement of arteriolar blood pressure. In his report on arteriolar-capillary plethysmography, Jacquet (Reims) explained that this method permits obtaining accurate volumetric curves or curves of the variations of the arteriolar and capillary circulation. This method is of a special interest in peripheral vascular diseases, sclerosis, and arterial hypertension and in evaluating the prognosis with regard to drug therapy. The author stressed the good results obtained with cobalt (injections of cobalt benzenesulfonate) in these diseases.

Cachera and Darnies (Paris) reported a study on abnormal capillary permeability in hepatic disorders. They described a method of studying capillary permeability consisting of electrophoretic analysis of blood samples taken simultaneously from the control arm and from the one compressed during Landis test.

Repeated Massive Doses of BCG by Mouth.—It is well known that localized or generalized lymphadenopathy may occur when BCG is administered by scarification. Bretey, Gernex-Rieux, and Tacquet observed for several months a large number of patients with ulcerocaseous tuberculosis and with non-tuberculous pulmonary conditions to whom BCG was given orally in massive doses of 100 to 300 mg, up to a total dose of 1,600 mg. They recently reported the results of their researches before the National Academy of Medicine. The tuberculin reactions of the patients constantly diminished and the level of antibodies rarely increased. In no case has there been any localized or generalized lymphadenopathy. BCG given orally was found still active in the stools.

CORRESPONDENCE

TRAINING PROGRAM FOR COLLEGE HEALTH PHYSICIANS

To the Editor—About the middle of the 19th century, the need for a program to promote and preserve the health of college students was recognized by President Stearns of Amherst College, and Dr Edward Hitchcock of his staff was the first physician to develop a regular health service program in 1856. This program, as well as other early health service developments, was devoted largely to teaching hygiene and physical education, only a few colleges provided an infirmary for the care of students who were ill. With the turn of the century, the development of a balanced health service program began in many schools, with entrance physical examinations, preventive immunizations and inoculations, care of illness through outpatient and infirmary service, and general supervision by a physician of the health problems of all students.

In 1920, there was organized in Chicago an association of persons interested in student health problems. This was the American Student Health Association. The first meeting of that group was held Dec 31, 1920, in Chicago with 37 persons present and with 53 schools named as charter members. From that beginning, this organization, now the American College Health Association, has grown to an institutional membership of almost 300. It provides an official group through which persons and institutions engaged in student health service may work for the promotion of health, the prevention of disease, and the care of student illness.

During recent years, the many persons engaged in student health work in colleges and universities of the country have attempted to provide more medical and health supervisory services of the highest caliber. There has been a clearer awareness of the need for such services brought about, in part, by the publication of draft board findings in 1917 and 1918 and again in the 1940's. More important, however, has been the development of techniques and understanding in the field of preventive medicine, much of which is peculiarly adaptable to the age group of college students. Tuberculosis, infectious mononucleosis, appendicitis, and athletic trauma are a few of the health problems commoner in this age group than in other periods of life. It is in the postadolescent and early adult years that so many degenerative diseases begin. Health habits can be formed or in part made over by intelligent approach and instruction during these years. Emotional problems are common in this group and can frequently be prevented from developing into the neuroses and psychoses of later life. Diet and food fads are frequent and peculiar, and, in general, persons in the early adult group pay less attention to their health during this period of their life than at any other time.

These factors have led to the growth of a group of physicians who have devoted most of their time to serving as health officers in colleges and universities and who have become, in a sense, specialists in the field of student medicine. They are not specialists in the usually accepted meaning of the term. In fact, they are more than anything else general practitioners devoting their professional efforts to the student age group and its specific problems. Some of them have had special training before entering student health activities and have achieved recognition by one of the various specialty boards. Among them are internists, psychiatrists, and public health specialists.

All physicians who have devoted any considerable time to the field of student medicine have acquired certain special skills. They must be not only skilled physicians but also educators. They hold, in most schools by reason of their position and training, academic rank. They, therefore, combine the responsibilities of physician, teacher, and administrator and must be aware of the problems of the college and university in the field of health supervision, as well as the health problems of

the students under their care. Such a position can and should be one of the most important posts in the organizational program of any college or university. There are more than 6 million college graduates and more than 2 million college students in the 1,300 colleges in the United States today. About 16% of all men and women of the college age group are enrolled in college. It is assumed that these men and women will become the leaders of our country in every field of endeavor, and it becomes highly important that these leaders not only enjoy the best personal health possible but understand and appreciate the problems of providing good health for all persons.

If, during their college years, students receive good medical care and are instructed adequately in the preservation of health, the avoidance of bad health habits, and the development of an intelligent, positive, and constructive approach to the problems of health for themselves and for their families, much progress will have been made toward the solution of the general problems of medical care.

The American College Health Association has for many years believed that there is need for wider understanding of the scope and importance of the medical work being done in student health service units, particularly among the members of the medical profession. With this knowledge, many more physicians would undoubtedly find themselves attracted to the work and would become interested in learning how they might enter the field. The association has given much thought to this problem in recent years, and the following program has been devised in order to provide a means whereby interested physicians may take definite steps toward a career in student medicine.

The suggested plan consists of two programs. One has been planned primarily for the younger physician who is interested and who desires to enter the work after his internship or residency. Such persons, having had little or no experience in private practice, will spend two years in one or more universities building a background and understanding of the problems, philosophy, and requirements of student medicine. Emphasis will, of course, be on clinical work in the health service infirmary of the school in which they train.

The second program will be shorter and will last for one year. It is planned especially for the older physician who has had a wider experience in the practice of medicine and who needs only to orient himself in the field of student medicine. Physicians interested in this program will be those who for health or personal reasons desire to give up the rigors of private practice but who wish to continue active in their profession on a regular hour and salary basis.

The major part of the time of both programs will be devoted to clinical work. Other fields to be covered will be health service administration, hospital supervision, correlation of health service with problems of health education, the admissions office, dormitory supervision, environmental sanitation, medical social service, and general college administrative problems. The exact amount of time that will be spent in each area will vary with each school. In general, however, all subjects mentioned and possibly some others will be covered. The director of the health service at the institution at which the trainee enrolls will supervise the program.

In some of the universities, it is expected that arrangements can be made for interested trainees to combine their health service work with a formal program leading to a master's degree in the field of their choice. There should be little difficulty, for instance, in working out a program for a master of public health degree in universities in which the curriculum is available. Other possibilities will come to mind as the program is developed.

It is expected that the trainee will be considered a regular staff member of the health service in which he trains and that he will provide valuable service for the department in much the same manner as other staff members. He shall, therefore, receive regular compensation in accordance with the minimum established scale for similar work in the particular health service. Funds for this purpose will be provided from each health service budget and may be supplemented from scholarship or research funds, if available.

This in-service training program will be started in five universities in September, 1953. These first programs will be pilot studies and will be continued for several years before similar programs are made more widely available. It is desirable to know how the various types of curriculums work in practice, how satisfactory the service is to both the trainee and the participating university, what problems develop in relation to finances, what arrangements can be made to correlate degree programs, and how many physicians are interested.

At the annual meetings of the American College Health Association, the plan is that a certificate or diploma will be conferred on the trainees as they complete the program. The association receives numerous calls each year from universities and colleges asking for aid in finding a qualified physician for work in their health services. It is expected that physicians who undertake this in-service training program and who receive the certificate will be qualified for recommendation for such positions.

The five universities at which the program will be started in September, 1953, are Cornell University, Ithaca, N. Y.; the University of Michigan, Ann Arbor; the University of Minnesota, Minneapolis; the University of California at Berkeley; and the University of Kansas at Lawrence. Physicians interested in obtaining further information may write to any of the following persons: Norman S. Moore, M.D., Cornell University, Warren Forsythe, M.D., University of Michigan, Ruth Boynton, M.D., University of Minnesota, Ralph Canute-son, M.D., University of Kansas, William G. Donald, M.D., Ernest V. Cowell Memorial Hospital, Berkeley 4, Calif.; Dr. Edith Lindsay, secretary, American College Health Association, School of Public Health, University of California, Berkeley 4, Calif.; Dana Farnsworth, M.D., president, American College Health Association, Massachusetts Institute of Technology, Cambridge, Mass.; and Irwin W. Sander, M.D., director, Student Health Service, Wayne University, Detroit, Mich.

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Wayne University, Detroit 1

BULBAR POLIOMYELITIS

To the Editor—The article in the March 28, 1953, issue of *THE JOURNAL* (page 1099) entitled "Four Fatal Cases of Bulbar Poliomyelitis in One Family" deserves comment. The cause of death in patients with poliomyelitis is well known. They die of asphyxia from impairment of respiration. This impairment is due to weakness of the primary muscles of respiration, to obstruction of the airway, or to a combination of the two. Rarely is the respiratory center involved. In bulbar poliomyelitis, difficulty arises from obstruction of the airway, because of impairment of swallowing or paralysis or spasm of the vocal cords. With paralysis of the muscles of deglutition, the patient is unable to rid himself of pharyngeal secretions, and he aspirates them and is eventually asphyxiated.

The treatment of these conditions is well known. Tracheotomy should be performed, and the airway should be kept free of obstructing materials. If these measures do not produce sufficient ventilation, artificial respiration is given by means of the tank respirator. Oxygen should not be administered unless one is ready to perform a tracheotomy and use artificial respiration if the patient does not do well. The problem is not hypoxia, for that is relatively easy to treat, but rather hypercapnia, the retention of carbon dioxide and the develop-

ment of respiratory acidosis. It is well known that a carbon dioxide concentration of 5% in the blood will anesthetize the respiratory center. If the patient then continues to breathe, it is because of action of the accessory respiratory centers that lie in the carotid bodies and along the aorta. These centers are stimulated not by carbon dioxide accumulation but by oxygen deficiency. In view of these facts, administration of oxygen to a patient in whom the respiratory center is anesthetized, as in one with bulbar poliomyelitis, is a serious error in treatment, because it corrects hypoxia and, thereby, removes the sole stimulus for respiration. Also, it is disastrous to place a patient with secretional obstruction in a respirator without performing a tracheotomy beforehand, because the probability of aspiration of secretions into the lower respiratory tract is increased.

In the past seven years, over 8,000 patients with acute poliomyelitis have been treated in the communicable disease unit of the Los Angeles County Hospital. We have treated hundreds of patients with respiratory difficulty similar to those described in the article cited. Our mortality rate is 11%. In patients with bulbar poliomyelitis without involvement of the muscles of respiration, it is less. Our method of treatment was published years ago.

The children described in *THE JOURNAL* should have received an early tracheotomy, artificial respiration with the tank respirator, an indwelling nasogastric tube to relieve gastric dilatation, appropriate repair solutions of electrolytes, and blood and plasma as indicated after study of the blood pH, carbon dioxide combining power, potassium, sodium, chloride, albumin, and globulin values.

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INSECTS AND DISEASE

To the Editor—The letter in the May 2, 1953, issue of *THE JOURNAL* (page 77) by Dr. Frank C. Leeming, regarding the possibility of spread of poliomyelitis by fruit flies, recalled to mind a somewhat similar letter in an old medical journal. In an 1811 or 1812 issue of a journal no longer being published, there was a letter to the editor from a physician who set forth his observations on the relationship of yellow fever to the prevalence of mosquitoes. Unfortunately, little attention was paid to that communication, and it was many years and lives later that the cause of yellow fever was definitely established and the disease controlled. It is hoped that observations like Dr. Leeming's will induce a more intensive search for possible insect vectors of poliomyelitis.

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MILKER'S NODULES

To the Editor—In the May 2, 1953, issue of *THE JOURNAL* (page 50) I noticed with interest an editorial on milker's nodules. The editorial refers to the apparent rarity of this disorder as evidenced by the few cases reported in the literature. While this is generally conceded to be a rare disorder, in the deep South it is not so rare as appears from the literature. I would like to call your attention to an article in the *New Orleans Medical and Surgical Journal* (97:13 [July] 1944). It adds more to the information given in *THE JOURNAL* editorial.

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COUNCIL ON MEDICAL SERVICE

MEDICAL CARE FOR THE DEPENDENTS OF SERVICEMEN

The following report was made by the Council on Medical Service to the Los Angeles County Medical Association, Welfare Council of Metropolitan Los Angeles, and such other local agencies as are concerned with providing medical, hospital, and related services to the wives and dependents of servicemen

During 1951 the increased tempo of the "cold war," including the so-called Korean Police Action, resulted in a renewed interest on the part of Congress in legislation to create a program similar to the Emergency Maternal and Infant Care (E M I C) program of World War II. In order to be informed on the subject and be prepared to give sound advice on any legislative proposals that might be introduced in Congress, the American Medical Association Council on Medical Service assigned the matter to its Committee on Maternal and Child Care for full study and review.

As a first step the Committee conducted an opinion survey to learn the reaction of the medical profession to the E M I C program of 1943 to 1947 and what, if any, suggestions might be made for improving the program, if adopted by Congress. Included in the survey were all state medical associations and several hundred physicians representing general practice, obstetrics and gynecology, and pediatrics.

The second step taken by the Committee was a series of conferences with representatives of various national agencies, such as the American Hospital Association, the Association of State and Territorial Health Officers, the American National Red Cross, the American Academy of Pediatrics, and the associations representing obstetrics and gynecology. These meetings offered an opportunity to learn more concerning the good and bad points of the E M I C program's operation and to learn the opinion of those most concerned in such a program as to the present need of national legislation in the field. There was almost unanimous agreement that a national program was not needed at the present time (1951). On the other hand, in view of the special obligation of civilians toward those drafted into military service and the uncertainty of the future of the "cold war," it was generally agreed that more specific data were needed concerning the problems encountered by the wives of servicemen during pregnancy periods and the type of medical care received. In view of this, the Committee made numerous inquiries as to where, how, and by whom such studies might best be conducted. At the suggestion of the executive officer of the Los Angeles County Medical Association, contact was made with the research division of the Welfare Council of Metropolitan Los Angeles and arrangements were made for the preparation of a prospectus for such a study. This prospectus was reviewed with representatives of the various national agencies previously mentioned, and a three part study was authorized, to begin in January, 1952, to be financed jointly by the welfare council and the American Medical Association.

The general purpose of the study was to identify the problems encountered by servicemen's wives when seeking and receiving maternity and infant care and on the basis of the findings seek to point out such remedial measures as might be indicated and the agency or agencies that should initiate them. The research division of the Los Angeles Welfare Council accepted responsibility for the technical aspects of the fact finding and as stated in the final reports, "enjoyed complete freedom in developing the design for the study, for the interview schedule construction, and for analysis of the findings."

Part 1 of the study concerns the problems encountered and the type of care received during pregnancy. It was begun

in January, 1952, and reported on in April, 1952. The data was secured through interviews with all servicemen's wives living in Los Angeles County who delivered during a selected week in January, 1952. These women were interviewed by a trained staff in a total of 89 hospitals and maternity homes and, in a small number of cases, in their own homes shortly after delivery.

Part 2 concerns the problems encountered and the type of care received during the postnatal period by both mother and the child. It was begun in April, 1952, and reported on in December, 1952. The data for part 2 were gathered through interviews with a sample of servicemen's wives who delivered during the month of August, 1951.

The Committee on Maternal and Child Care of the American Medical Association Council on Medical Service has followed the study closely, reviewing all data reports as they were completed. The executive office of the Los Angeles County Medical Association was kept advised of progress, and the study reports and interview abstracts were available for review. While the A M A did not officially participate in the study, several of its members participated in the discussion at its inception and personally kept informed of its progress.

In view of the importance of this study, not because the specific findings are applicable nationally but rather because the follow up or remedial measures that result may well be applicable elsewhere in the nation, the Committee on Maternal and Child Care met in Los Angeles during the last week in January, 1953, to confer with representatives of groups and agencies concerned with providing medical, hospital, and related care and services for the wives of servicemen. On the basis of its own inquiries into the operation of the World War II E M I C Program, the conference with other national agencies, the study conducted here in Los Angeles, and the discussions with representatives of local groups and agencies, the Committee on Maternal and Child Care believes the following assumptions to be reasonable:

- 1 The dependents of our military men, particularly of those who are drafted into the service, constitute a group whose age, income, and frequently transient status, are such as to warrant special consideration on the part of civilian agencies concerned with medical, hospital, and related services.

- 2 In Los Angeles County there is ample evidence that the wives of servicemen do receive good medical and hospital care during pregnancy. The study showed that prenatal care was obtained by the third month in all but one case studied. Every delivery was in a hospital and attended by a physician, and postpartum and pediatric care was both available and utilized.

- 3 There is also ample evidence that Los Angeles County has adequate civilian facilities to provide the dependents of servicemen with necessary medical and hospital care during pregnancy as well as related services, such as counseling, day care for children, and assistance in working out other problems that may arise during this period of stress. In addition, there are in the area military facilities that supplement civilian facilities and may be utilized if the wives so desire.

- 4 Despite the existence of adequate facilities and services a substantial proportion of these women encountered problems. This, in itself, is only natural, since these wives represent a cross section of young American women faced with both a physical and mental ordeal. Except for complications introduced in some cases by residence in a strange city and by the absence of the husband, the problems are much the same as those encountered by other women of similar age and circumstance.

- 5 Yet, because of the recognition that this group does warrant special consideration and because of the fact that adequate facilities and services do exist in Los Angeles that, if coordinated and utilized, would have reduced the problems encountered to a minimum, it would seem that they should not be ignored.

- 6 These problems for the most part concern (a) cost planning, (b) coordination, and (c) information. Cost, of course,

is a problem with which most of the wives were concerned. Although cost was not a factor in obtaining good medical and hospital care, it did influence the type of service and facility to which a number of wives turned for care, i e, private, public, or military. Although some wives preferred military facilities and some preferred public facilities, there were others who preferred private facilities but because of either a lack of knowledge as to where services and facilities were available within their budget or because they had failed to budget for the cost involved found it necessary to go to the public or military hospital. Selection of a public or military facility instead of a private physician and hospital, however, was a matter of choice oftener than it was dictated by financial reasons. The study showed that 60% preferred and made arrangements for private services and probably another 5 to 10% would have preferred private facilities had they known how to make the necessary arrangements. Cost planning is, of course, a necessity in all private care, whether it be provided at usual fee and hospital rates or on a reduced basis. It is obvious in the Los Angeles study that where cost planning started early enough and was reasonable and consistent, the wives obtained and paid for private care. It was equally obvious that a lack of planning was frequently the cause of the financial inability of other wives to obtain private care, even when it was preferred. The Committee believes that attention must be given to developing some organized center through which these women can obtain counsel as early as possible concerning financial planning. Such counseling, coupled with knowledge of where and how services can be obtained within the means of the wives' ability to pay, should minimize the cost problem.

Lack of coordination among the numerous groups and agencies ready and willing to serve the wives of servicemen resulted in many unnecessary problems. This is particularly true because of the wide area covered by Los Angeles County and the resultant problems of transportation. For the most part transportation problems could have been alleviated by knowledge of existing facilities available to these women and within easy commuting distance. Other problems, such as those concerned with day care for children, the obtaining of proper allotments, and the need for home nursing or house-keeping services, would also be minimized with proper coordination among the agencies offering such services.

The lack of knowledge concerning facilities and services available and sources to which to turn for assistance and information was amazing, particularly in view of all of the agencies interested in serving these women. It was quite evident from the study that every effort should be made to remedy this situation, and the Committee believes the following recommendations be reasonable and practicable.

It is recommended that a special coordinating committee be established in Los Angeles County whose purpose would be (a) to assure the men serving in our military forces that their wives and families will have adequate medical and hospital facilities available in time of need (b) to concentrate primarily on facilities and services needed during periods of pregnancy, (c) to develop complete and descriptive data concerning both facilities and services available in the Los Angeles area (d) to coordinate all of these facilities and services to the end that each will recognize and accept its part in assuring care to the servicemen's dependents (e) to reach the wife of every serviceman in Los Angeles County with this information, (f) to provide proper counseling services to the wives, and (g) to encourage the utilization of civilian services and facilities to the end that military facilities will be used only for the purpose for which they were constructed, i e, the care of military men.

It is further recommended that this coordinating committee be sponsored by the Los Angeles County Medical Association and be composed of representatives from the following groups: (a) Los Angeles County Medical Association (b) local obstetrical and pediatric societies (c) local hospital association

(d) Welfare Council of Metropolitan Los Angeles, (e) Veterans Service Center, (f) American National Red Cross, (g) local health department, and (h) such other groups as may be concerned with this problem.

It is further recommended that this coordinating committee undertake the following activities: (a) Preparation of a complete listing of all services available to the wives and dependents of servicemen that might be helpful during and following pregnancy. Such a listing should describe the service, give the costs, if any, and provide the address, telephone number, and name of the agency or person, or both with whom contact should be made. Such a listing should also contain basic maps of the various areas involved, showing by symbol the locations of the services available. Finally, it should be published in such manner as to be readily identified and easily carried.

(b) Creation of a central information center to which the wives of servicemen might turn for advice and information regarding all of the available services listed in (a). The purpose of this center should be the coordination of information to the end that the wives will learn where to go for such assistance, service, advice, or guidance as may be needed or indicated.

(c) Determination of ways and means of seeing to it that every serviceman's wife in the area has a copy of the published listing and knows of the existence of the central information center.

(d) Evaluation of all listed available services for the purpose of recommending steps for improvement and for better coordination.

The Committee also makes the following recommendations:

(a) The Welfare Council of Metropolitan Los Angeles should specifically undertake, in cooperation with its member agencies, to assure that counseling services, day care services, home-maker services, and such other social services as may be deemed necessary are available directly to the wives of servicemen or through referral from the central information center.

(b) The local hospital council, in cooperation with its member hospitals, should assure that hospital facilities are available to wives of servicemen during delivery at costs that the wives can afford to pay.

(c) The Red Cross should continue with its present excellent service program for the wives of servicemen and assist, through its staff, in reaching these wives with proper information as to available facilities and resources.

(d) The Veterans Service Center should offer its extensive facilities in reaching the servicemen with information concerning the project suggested here.

It is further recommended that the Los Angeles County Medical Association specifically undertake the following activities:

(a) Financing of the Committee, preparation of the listing, and its publication.

(b) The joint staffing, with such other agency or agencies as may wish to participate, of the central information service. This agency should be located where it is most convenient, with four possibilities that seem logical: the medical society, the welfare council, the Veterans Service Center or the Red Cross.

(c) Assurance, in cooperation with the local chapter of the American Academy of General Practice and the local obstetric and pediatric societies, that physicians' services are available to the wives and children of servicemen at costs that the wives can afford to pay.

Finally, it is recommended that every effort be made to inaugurate this program immediately, as a major morale booster for those servicemen now fighting in Korea and for those awaiting shipment orders so that they need not be concerned over the care of their wives and dependents.

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A M A Arch Internal Medicine, Chicago

91 143-282 (Feb) 1953

- *Antibiotic Resistance of Pathogenic Staphylococci Study of 500 Strains Isolated at Boston City Hospital from October 1951 to February 1952. M Finland and T H Haight—p 143
- Liver Coma with Particular Reference to Management. M M Karl R A Howell J H Hutchinson and F J Catanzaro—p 159
- *Clinical and Laboratory Study of 31 Patients with Hemorrhagic Fever G J Barbero S Katz, H Kraus and C L Leedham—p 177
- Lack of Interference of Aureomycin with Penicillin in Treatment of Pneumococcal Pneumonia J J Ahern and W M M Kirby—p 197
- Oxytetracycline-Streptomycin Therapy in Brucellosis Due to *Brucella* *Melitensis* G B Magill and J H. Killough—p 204
- Involvement of Bone Marrow in Diffuse Pulmonary Disease. A S Welsberger and R M Dumm—p 212
- Secondary Tumors of Heart and Pericardium Review of Subject and Report of 137 Cases J F DeLoach and J W Haynes—p 224
- Cardiovascular Lesions Following Bilateral Nephrectomy of Dog Role of Hypertension and Other Factors on Pathogenesis E E Muirhead, J A Stirman F Jones and others—p 250

Antibiotic Resistance of Pathogenic Staphylococci.—Five hundred strains of hemolytic, coagulase-positive *Staphylococcus aureus* isolated at the Boston City Hospital from October, 1951, to February, 1952, were tested for sensitivity to nine antibiotics. The incidence of penicillin-resistant strains and the increase over previous observations in the proportion of strains resistant to aureomycin and oxytetracycline (Terramycin) were the most significant observations. About three fourths of the strains were resistant to penicillin, one fourth were resistant to aureomycin, and one-third were resistant to oxytetracycline. The close correlation between penicillin resistance and penicillinase production was confirmed. Except for a slight overlap of seven strains that were inhibited by 3.1 or 6.3 μ g of penicillin per milliliter, all strains resistant to higher concentrations were penicillinase producers, while those sensitive to lower concentrations were not. There was no close correlation between the source of the strains and their antibiotic resistance. The fecal strains, however, included a higher proportion of strains resistant to penicillin, aureomycin, and oxytetracycline than did those from any other source. There was a close correlation between resistance to aureomycin and to oxytetracycline when allowance is made for the relatively lower inhibitory action of the latter on a large proportion of the strains. There was no correlation between the grades of susceptibility to streptomycin and to any of the other antibiotics. On the other hand, strains that were resistant to aureomycin or to oxytetracycline were all resistant to penicillin, the reverse, however, was not true. While there was some relation between the incidence of antibiotic resistant strains and use of the corresponding antibiotics in treatment of the patients from whom the strains were isolated, the correlation was not a close one. However, the data do suggest that while previous antibiotic therapy of any given patient may be an important factor in the occurrence of strains resistant to that antibiotic, the widespread use of antibiotics may be of equal or greater importance in the increase in incidence of staphylococci that are resistant to those antibiotics, such strains may become or remain pathogenic and retain their resistance when they are disseminated and acquired by patients who have themselves not received such antibiotics.

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Titles marked with an asterisk (*) are abstracted

Clinical and Laboratory Study of Hemorrhagic Fever.—During the autumn and winter of 1951-1952 an outbreak of epidemic hemorrhagic fever occurred in Korea, chiefly in and around the cities of Kumhwa, Chorwon, and Yonchon. The 31 patients in this series were United Nations personnel from that area. No etiological clue was obtained from their histories of food and water ingestion, individual activities, disease contacts, or past illnesses. The clinical syndrome was a composite of nonspecific febrile, cardiovascular, gastrointestinal, renal, and hemorrhagic manifestations, with occasional neurological complications. The onset was usually abrupt, with shaking chills, fever, headache, backache, dizziness, eye pain, and blurred vision. The addition of malaise, fatigue, anorexia, nausea, vomiting, and myalgia produced a picture of severe prostration. A deep erythematous flush of the face and neck, injection of the membranes of the soft palate and palpebral conjunctiva, and edema of the face and eyelids were present almost from the onset. Examination revealed tenderness of the abdomen and of the costovertebral angle, moderate lymphadenopathy, and occasional enlargement of the liver or spleen. During the acute fever peripheral vascular collapse with hypotension and weak peripheral pulses were often seen. Usually, all the symptoms and signs become most intense between the third and seventh days of illness. As early as the second day, a hemorrhagic tendency was evidenced by petechiae in the axillae and soft palate. These and other signs of hemorrhage reached their height at the end of the first week of illness. An increase in capillary fragility, a depression of the platelets, and a prolongation of the bleeding time were found during the period of hemorrhage. Renal involvement appeared between the second and fourth days of illness, with microscopic hematuria and albuminuria. By the end of the first week, the urine output began to decline. Oliguria was accompanied by a fall in specific gravity of the urine and blood nitrogen retention appeared. The renal damage varied from transient abnormalities of the urine to severe uremia. Toward the end of the second week of illness, many of the symptoms began to subside. By the third or fourth week of illness, most of the symptoms and signs had disappeared or were markedly diminished, and during the next few weeks, weight, strength, and renal function returned to normal. There usually was no residual damage.

A M A Arch Pathology, Chicago

55 85-172 (Feb) 1953

- Accelerated Hypertensive Vascular Disease from Saline and Renin in Nephrectomized Dogs G M C Masson G Plahl A C Corcoran and I H Page—p 85
- Endothelioma of Corpora Cavemosa of Penis. T R. Waugh—p 98
- Observations on Nature of Galactose Toxicity in Rats J M. Craig and C E Maddock—p 118
- Microscopic Differential Diagnosis of Latent Carcinoma of Prostate. R S Totten M W Helnemann P B Hudson and others—p 131
- Male Pseudohermaphroditism in Three Siblings C. Cavallero and F Zarnardl—p 142
- Histochemical Changes in Irradiated Ovaries I Succinic Dehydrogenase Activity A G Foraker S W Denham and M H Johnston—p 147
- *Bilateral Ductus Arteriosus Representing Persistence of Each Sixth Aortic Arch Report of Case in Which There Were Associated Isolated Dextrocardia and Ventricular Septal Defects. J R. Kelsey Jr., C E Gilmore and J E Edwards—p 154
- *Primary Alveolar Cell Carcinoma of the Lung J H Fisher and W J Holley—p 162

Bilateral Ductus Arteriosus.—At one stage in its embryological development the aortic arch system includes a sixth (pulmonary) aortic arch on each side. The right and left pulmonary arteries arise as branches of these arches. The right sixth arch disappears beyond the point of origin of the right pulmonary artery. On the left side the corresponding portion of the sixth arch persists as the ductus arteriosus. Certain malformations are characterized by abnormal retention or disappearance of the elements of the sixth (pulmonary) aortic arches. For example, disappearance of the left sixth arch be-

yond the origin of the left pulmonary artery and persistence of the entire right sixth arch result in the presence of a ductus arteriosus on the right and none on the left. Loss from each sixth aortic arch of the portion beyond the origin of the respective pulmonary artery yields an aortic arch system in which there is no ductus arteriosus. Rarest of all malformations involving abnormal retention or disappearance of one or the other of the two sixth aortic arches are those in which these arches persist in their entirety. Kelsey and associates describe such a case. Bilateral ductus arteriosus was found, accompanied by isolated dextrocardia, ventricular septal defect, and pulmonary atresia in a boy, who died at the age of 10 months. The left ductus arteriosus was obliterated in a normal manner, while the right ductus arteriosus was patent and served as a collateral channel for pulmonary blood flow.

Primary Alveolar Cell Carcinoma of Lung—Fischer and Holley present five cases of so-called primary alveolar cell tumor of the lung and a probable sixth case is mentioned briefly. All the tumors were malignant, producing regional or distant metastases. In all cases both lungs were involved. In three the tumor was multiple nodular in type, while in the other three it was combined nodular and diffuse. The histological structures of the two forms are identical. In biological behavior the tumors resembled a carcinoma. The opinion is expressed that these tumors arise from terminal bronchiolar epithelium. The gross and microscopic features corresponded closely to those described by Swan and by Neubuerger and Geever. The ratio of males to females was 4:2. The patients' ages ranged from 47 to 80. The clinical signs and symptoms were those of a chronic pulmonary disease. It is believed that the widespread tumor growth in the lungs interfered with normal pulmonary function and thus was an important contributory cause of death. Alveolar cell tumors of the human lung are rare. In 1942 Neubuerger and Geever collected 25 authentic cases and added 2 of their own. In 1949 Swan, in screening approximately 900 pulmonary neoplasms, found nine pulmonary tumors which fulfilled the criteria established for tumors of this type: tall columnar mucus-secreting cells lining the pulmonary alveoli, absence of an intrinsic tumor of the bronchi, and absence of a primary adenocarcinoma of any other part of the body. Since 1949 many additional papers have been published on this rare pulmonary tumor.

Alabama State Medical Assn Journal, Montgomery

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- Genito-Urinary Disease as Cause of Non-Urologic Complaints. G. C. Poore.—p. 195
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- Surgical View of Prostate. J. U. Reaves.—p. 223
Indications for and Dangers of Barbituric Acid Derivatives. W. D. McNally.—p. 225
Treatment and Prognosis of Amebiasis. W. H. Tucker.—p. 231
Recent Advances in Temporal Bone Surgery. E. R. Nodine.—p. 236

Amebiasis.—Stools obtained by purgation, enema, or sigmoidoscopic aspiration from 357 mildly symptomatic or asymptomatic patients between the ages of 5 and 79 years were examined for amebas. 85 (23.8%) contained *E. histolytica*. This parasite was found oftenest in the sigmoidoscopic specimen. No trophozoite passers were found in this group. Malaise, weakness and nervousness were seen in 47 of the 85 patients with amebas, abdominal discomfort in 30, constipation in 21, flatulence and food idiosyncrasies in 16 and diarrhea in 14. All 85 patients were initially given antiamebic treatment by one of two methods: (1) bismuth glycolylarsanilate (Milibis) in doses of 500 mg. three times daily for 16 days followed by chloroquine phosphate (Aralen diphosphate) in doses of 125 mg. twice daily for 30 days, followed by a second course of bismuth glycolylarsanilate and then a second course of chloroquine phosphate, or (2) oxytetracycline (Terramycin) in doses of 500 mg. every six hours for 10 days. Of 63 patients passing cysts of *E. histolytica* with bismuth glycolylarsanilate and chloroquine phosphate, 22 were given combined retreat-

ment consisting of the simultaneous administration of 500 mg. of oxytetracycline four times daily, 250 mg. of chloroquine phosphate twice daily, and 500 mg. of bismuth glycolylarsanilate three times daily for 10 days. Bismuth glycolylarsanilate and chloroquine phosphate seemed to be superior to oxytetracycline alone. Simultaneous administration of all three of these drugs for 10 days was the most effective combination tried. Fifty-three (70%) of the mildly symptomatic or asymptomatic patients passing cysts became free of their presenting complaints 5 to 20 days after the institution of antiamebic treatment or were definitely improved, and, therefore, could be considered as receiving benefit from antiamebic therapy. Startling and dramatic recoveries were observed in many patients who had been hitherto considered neurotic. Many months of observation are necessary for the proper evaluation of any form of treatment for *E. histolytica*.

American Journal of Clinical Pathology, Baltimore

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The Surgical Problem of Peptic Ulcer in Childhood—Three children with gastric ulcer and 13 with duodenal ulcer have been seen at the Children's Hospital of Pittsburgh over a 14 year period The three with gastric ulcer had the follow-

ing associated diseases tuberculosis of the spine, brain abscess and bronchial asthma Splenomegaly due to Banti's syndrome, congenital hydrocephalus, serious drug reaction, and cystic fibrosis of the pancreas were associated diseases in the children with duodenal ulcer The ages of the children ranged from 6 weeks to 14 years Gastric analyses seemed of little value in the diagnosis of peptic ulcer in childhood Diagnosis was made at postmortem examination in four cases, at operation in two cases, and by roentgenogram in ten cases In five of the children an attempt was made to cure the ulcers by gastroenterostomy Two remained well, having been followed up for nine and 18 months, respectively, in two marginal ulcers developed, and the fifth required a subtotal gastrectomy because of obstruction and hemorrhage four years after the original operation Four patients, who did not receive surgical treatment, died When a peptic ulcer perforates in a child, surgical closure is necessary While hemorrhage can frequently be managed conservatively, a large percentage of such children require additional treatment Gastroenterostomy may not be the best procedure to relieve intractable symptoms and obstruction in children

Duplications of Alimentary Tract in Adults—The fact that three alimentary tract duplications were observed within six months in patients from 31 to 51 years of age convinced Nolan and Lee that those congenital anatomic errors are more frequent in adults than is generally realized The true incidence of these duplications is difficult to determine, the more so since the term has only recently been accepted as including not only tubular supernumerary viscera, such as ileum duplex, but also spherical forms, which generally have been described as enterogenous cysts, enterocystomas, and inclusion cysts of the alimentary tract Many tubular duplications have been mistaken for unusual Meckel's diverticula, and spherical duplications, when found in the thorax, have been called congenital gastric cysts Of the three patients whose histories are presented, one had a massive gastric duplication associated with hemorrhage, the second had a spherical duplication of the esophagus, associated with inferior vena caval compression, and the third had a spherical duplication of the ileum, associated with intussusception The embryology, pathology, clinical and roentgenologic aspects, and the treatment of duplications of the alimentary tract in adults are discussed In the treatment of duplications two points are important. First, since the duplication and the parent intestine have the muscularis in common, no plane of cleavage can be established Second, the blood supply to the normal alimentary tract may be destroyed by removal of the duplication For these reasons, resection of both the normal and abnormal alimentary tract is the method of choice in most instances If the organ concerned has a large lumen and an almost indestructible blood supply, as does the stomach, resection followed by closure of the resultant defect is a feasible procedure In small spherical duplications, simple excision by sharp dissection through the plane of the muscularis, followed by serosal apposition, is a permissible procedure The danger of resecting a large duplication with a broad attachment to the esophagus cannot be overemphasized Resection in several instances in children has been followed by disaster When the duplication is associated with a portion of the alimentary tract, which lends itself well to surgical resection, the outcome is more likely to be favorable

Treatment of Cancer by Intra Arterial Injection of Nitrogen Mustard—Brief case reports are presented of 11 patients with advanced cancer treated by intermittent intra arterial injection of the nitrogen mustard, bis (beta-chlorethyl) amine hydrochloride The drug had little beneficial effect in eight of these patients Three patients showed temporary improvement in the form of regression of the mass or relief of pain Complications accompany this type of therapy Necrosis of the soft tissue of the neck was produced by extravasation of the drug into the wound Bone marrow depression resulted when large amounts of nitrogen mustard were used Transient and occasionally serious edema developed in parts when catheters were placed in head and neck The tongue became severely edematous and the skin became red and scaly or necrotic Cerebral

effects occurred occasionally with large doses or with treatment through the carotid artery. Nausea, malaise and weakness were constant. Insertion and care of catheters and the administration of the drug require technical skill, a great deal of personal attention, careful observation, and nursing care. The authors feel that the benefit obtainable by this method is not sufficient to counterbalance the adverse effects, reactions, and unavoidable complications.

Blood, New York

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Adrenalin (Epinephrin) Test as Applied to Hematologic Disorders J B Chatterjee W Dameshek and M Stefanini—p 211
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Renal Excretion of Water Sodium and Chloride Comparison of Responses of Hypertensive Patients with Those of Normal Subjects Patients with Specific Adrenal or Pituitary Defects and a Normal Subject Primed with Various Hormones R Birchall S W Tuthill W S Jacobs and others—p 258
Ballistocardiography Appraisal of Technic Physiologic Principles and Clinical Value R S Gubner M Rodstein and H E Ungerleider—p 268

Hexamethonium and Congestive Heart Failure.—Hypotensive doses of hexamethonium (30 mg on the average) were administered intravenously to 16 men and 3 women between the ages of 37 and 79 with different types of heart disease in various degrees of congestive failure. The immediate effects of this treatment were a fall in venous pressure in all patients exhibiting initial elevations, shortening of the circulation time and a decrease in heart rate in most cases, and frequent symptomatic improvement in the degree of dyspnea and orthopnea. Right auricular, right ventricular, and pulmonary arterial pressures also were reduced following hexamethonium administration. Cardiac catheterization studies carried out in 4 of the 19 patients revealed a decrease in intracardiac or pulmonary arterial pressures that paralleled the fall in arterial pressures following hexamethonium. An increase in cardiac output with a pronounced decrease in total peripheral resistance was observed in one cardiac patient in whom such determinations were carried out. It is suggested that hexamethonium, by reducing the total peripheral resistance and

diverting blood volume to the peripheral vasculature, may interrupt the vicious cycle associated with congestive heart failure by, first, decreasing the work demand of the left ventricle and, second, reducing venous overloading of the right heart.

Cortisone in Acute Rheumatic Myocarditis.—A 10-year-old girl with acute rheumatic fever was treated with prolonged courses of corticotropin (ACTH) and cortisone early in her illness but her disease was constantly active and progressive. She received no hormone therapy for a six week period terminating 16 days before death. During her final hospitalization she was given large doses (100 mg every eight hours) of cortisone intramuscularly with a total dose of 3,200 mg. There was no demonstrable clinical response to this therapy, and the patient died of intractable congestive heart failure. Necropsy revealed numerous interstitial lesions in the myocardium, many of which were acute and of highly atypical appearance. The changes consisted of various sized but frequently extensive and stellate areas of intense fibrinoid degeneration of collagen accompanied by little or no cellular reaction. Myocardial lesions that appeared to be of longer duration showed varying degrees of healing and did not differ from those seen in rheumatic myocarditis not treated with corticotropin or cortisone. The lesions observed by the authors in this case may be interpreted as representing a suppression of cellular reaction to altered collagen. The findings did not indicate that the injury to connective tissue associated with rheumatic fever has been prevented to any degree. The authors are unable to evaluate the effect of the observed morphological alterations on the eventual fate of the lesions. The significance of their observations will have to be determined by the long term studies now in progress of patients with rheumatic heart disease who have been treated successfully with corticotropin and cortisone.

Diseases of Chest, Chicago

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- *Therapeutic Use of Diethylaminoethyl Ester Hydroiodide of Penicillin G in Chronic Bronchopulmonary Infections Clinical and Bacteriologic Studies A L Barach H A Bickerman H M Rose and G W Melcher Jr—p 121
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Diethylaminoethyl Ester Hydriodide of Penicillin G in Bronchopulmonary Infections.—During the past year 80 patients with chronic bronchopulmonary disease, including chronic bronchitis, bronchiectasis and chronic pneumonitis, received a total of 100 courses of the hydriodide salt of diethylaminoethyl ester of penicillin G (Neo-Penill). Excellent results were obtained in 55, moderate improvement in 27, and little or no benefit in 18 of the 100 courses. The diethylaminoethyl ester of penicillin was supplied as the hydriodide salt in the form of a dry, relatively insoluble powder which, when reconstituted with sterile distilled water, formed a milky suspension having a potency equivalent to 300,000 Oxford units of penicillin.

per cubic centimeter The original material, 1714-J Formula A, produced considerable foaming when reconstituted This difficulty has been overcome in the more recent material (Formula D) The penicillin was administered intramuscularly once or twice daily in doses ranging from 500,000 to 2,000,000 units, with an average total dose of 9,000,000 units The duration of therapy varied from three to 18 days, averaging about eight days Ninety therapeutic courses were given to patients with purulent or mucopurulent sputum After treatment there was no sputum in four instances, mucoid sputum in 55, mucopurulent sputum in 19, and purulent sputum in 12 Sputum cultures after treatment were sterile in 36 and yielded gram negative bacteria in 27, *Staphylococcus aureus* in 14, *Bacillus proteus* in four, *Pseudomonas pyocyanea* in one, yeast organisms in three, and other organisms, including *Streptococcus viridans*, in five The authors feel that diethylaminoethyl iodide penicillin is quite effective in infections due to gram positive organisms Allergic reactions to penicillin and sensitivity to iodine were observed at times, but these side-effects were not sufficiently severe or frequent to limit the use of the drug

Pneumonia Comparison of Hydriodide of Diethylaminoethyl Ester of Penicillin G (Neo Penil) and Procaine Penicillin—The hydriodide of diethylaminoethyl ester of penicillin G (Neo Penil) gives rise to lower and less prolonged plasma concentrations than does procaine penicillin, but animal and human experiments have shown that the new penicillin G ester has a far greater affinity for the lungs than other penicillin preparations Since these unusually high tissue concentrations occur in the absence of high blood levels, it is felt that the tissue levels are due to the pharmacological property of the drug and not merely to a high blood tissue diffusion gradient Furthermore, the new penicillin G ester is a repository penicillin salt, but to a lesser degree than is procaine penicillin During the winter of 1951-1952, 114 pneumonia patients admitted to the adult fever wards of the Philadelphia General Hospital were divided into two therapeutic groups 55 received Neo-Penil, and 59 received procaine penicillin In general, the two groups were comparable as to the factors influencing prognosis The dose schedule with Neo-Penil and procaine penicillin was 500,000 units intramuscularly daily for a total of five days This was sufficient in 47 of the patients receiving Neo Penil and 48 of those in the procaine penicillin treated group There were five patients in each group who required therapy for 10 days because of certain complicating factors Also, there were nine patients (three in the Neo Penil treated group and six in the procaine penicillin treated group) who were given crystalline penicillin G in addition Three of the 114 patients died, but in each of these, the pneumonia was complicated by some serious, pre-existing disease process There were no untoward reactions attributable to either form of penicillin therapy in this series of cases Repeated roentgenographic studies were made on 94 of the 114 patients (42 in the Neo Penil treated group, 52 in the procaine penicillin treated group) within two weeks approximately 75% of both groups showed significant or complete resolution These data offer no evidence of significant difference between the two forms of penicillin in their ability to reduce fever Furthermore, both forms were equally adequate as far as the end results of therapy were concerned

Indiana State Medical Assn Journal, Indianapolis

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J Am Geriatrics Society, Baltimore

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J American Med Women's Assn, Nashville, Tenn

8 81-116 (March) 1953

- *Problem of Painful Shoulder C Henle—p 81
Phytomine® in Treatment of Simple Delay in Menstruation and as Possible Diagnostic Test for Pregnancy R S Finkler—p 88

Painful Shoulder—The condition discussed has been called bursitis, tendinitis, peritendinitis, pariarthritis, fibrositis, ruptured tendon, or bicipital syndrome The author limits the discussion to shoulder pain arising from local lesions of the rotator cuff, tendons, bursae, and tendon sheaths Symptoms may vary greatly In recent, complete rupture of the supra spinatus tendon, there is a history of an injury or strain, followed in 6 to 12 hours by severe pain and muscle spasm rendering the arm immobile Then there is the person who feels an occasional "catch" while the shoulder is in certain positions but who has no limitation of motion or other symptoms Pain is usually located over the greater tuberosity and radiates down the arm or across the upper trapezius fibers to the posterior aspect of the neck Swelling may be present over the bursa In the more usual case pain begins as an unpleasant sensation elicited by certain motions of the arm It becomes progressively more severe until it may wake the patient at night when he turns to the affected side The arm feels "dead" or weak X ray examination helps to exclude shoulder pain caused by bone or periosteal trauma, tumor, or infection, but it does not rule out tendinous or peritendinous lesions, which may be assumed to be present when symptoms and physical findings are typical Pain from visceral pathological conditions such as from the gallbladder, heart, or diaphragm must be excluded, as well as pain from cervical spine or spinal cord lesions A roentgenogram may not show calcific deposits near the tendinous insertions, but it may disclose increased density or irregularity in the bone at the tendinous insertion This is indirect evidence of an irritative process at this point Decalcification in the bone indicates a long-standing pathological condition with advanced tendon degeneration The author reviews observations on 125 patients with shoulder pain who were subjected to roentgen therapy Calcific deposits were present in the soft tissues in 78 patients Decalcification of the greater tuberosity was present in 14 and sclerosis on the bone margin in 26 of the patients Roentgen therapy was considered successful in 74% of the patients treated The highest percentage of good results was obtained in the younger age groups and in those patients in whom the symptoms had been of shorter duration

Journal Clin Endocrin & Metab, Springfield, Ill

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Journal of Immunology, Baltimore

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- Hemagglutinins Among Higher Fungi A W Bernheimer and M E Farkas—p 197

Journal of Thoracic Surgery, St. Louis

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- The Patent Ductus Review of 75 Cases with Surgical Treatment Including an Aneurysm of the Ductus and One of Pulmonary Artery E Holman R Gerbode and A Purdy—p 111
- *Anatomic (Histologic) Basis and Efficient Clinical Surgical Technique for Restoration of Coronary Circulation C P Bailey R C Truex A W Angulo and others—p 143
- Pulmonary Valvulotomy Description of New Operative Approach with Comments About Diagnosis Characteristics of Pulmonic Valvular Stenosis. H B Shumacker Jr and P R Lurie—p 173
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- Physiologic Studies Following Thoracic Surgery II Immediate Effects of Upper Lobectomy Combined with Five Rib Thoracoplasty W W Stead—p 194
- Intrathoracic Use of Large Bowel After Subtotal Esophagectomy for Cancer Report of One Case L. H Camara Lopes—p 205

Surgical Restoration of Coronary Circulation—The principle of arterialization of the myocardial capillary bed by reversal of the blood flow through the coronary sinus was successfully carried out by Beck and his co-workers Bailey and associates present anatomic investigations that demonstrate that this procedure is helpful in cases of advanced coronary arteriosclerosis. Most of the 18 patients presented here were operated on by Beck and the others by Bailey. A segment of a large superficial vein, either the median basilic vein of the arm or the external jugular vein, is removed under local anesthesia. The segment is irrigated with heparin solution and placed between layers of moist gauze. The patient is then anesthetized for the anastomosis. After the pericardium has been opened, the coronary sinus is identified and is traced to its terminus into the right atrium. After it has been partially dissected free from fat a curved needle, threaded with a heavy (Orlon) suture, is passed completely around the sinus about 1 cm from its terminus, leaving a loose loop of double suture, which is to be tied down at the second operation to obstruct largely the exitus of blood from the coronary sinus into the right atrium. This step will ultimately insure the reversal of flow through the coronary

sinus. The needle is removed, and the ends of the sutures are tied together, rolled into a small coil and sutured out of the way within the pericardium for easy accessibility at the second operation. A segment of the sinus, which is exteriorized by a clamp, is incised, and the vein graft is anastomosed to this incision. The other end of the graft is anastomosed to the aorta. At the second stage of the operation, which is performed three weeks after the first, the previous pericardial incision is reopened, and adherent tissues are dissected away from the region of the graft. Then the rolled up double Orlon suture is located, the two strands are separated and each is tied down separately over a 3 mm probe, thus providing a 3 mm passageway through which the sinus blood can partly escape into the right atrium. Two of the 18 patients, in whom reversal of the blood flow through the coronary sinus was planned, did not actually have an anastomosis performed, in one of these two, the coronary sinus was so delicate that it would not hold a suture and was closed with difficulty, in the other patient, the coronary sinus was too far to the right of the aorta, making anastomosis technically impossible. There were two deaths, one due to exsanguinating hemorrhage at the aortic anastomosis on the seventh postoperative day, the other occurred a few hours after surgery. Empyema developed in one patient after the first operative stage. In two patients, in whom thrombosis of the anastomosis was disclosed at the time of the second operation, the Orlon sutures were tied down, and both patients showed slight improvement. Of the remaining 11 patients, four had thrombosed grafts at the second operation. They were treated by instillation of asbestos powder into the pericardium. One of these four is slightly improved, two are unchanged, and one died six months after surgery. The seven with patent grafts showed improvement, varying from "clinical cure" to moderate amelioration. Among the modifications that reduce technical failures is the removal of a button of aortic wall rather than mere incision of the aorta to produce rapid flow of blood through the grafts and sinus. It is believed that this will reduce the incidence of thrombosis of the graft.

Journal of Urology, Baltimore

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- Ureteral Management Following Removal of Bladder and Lower Bowel for Carcinoma L E McCrea—p 217
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Missouri Medicine, St. Louis

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- Trigeminal Neuralgia Surgical Decompression of Gasserian Ganglion and Posterior Root of Trigeminal Nerve in Treatment R D Woolsey and J L K Tsang—p 99
- Differential Diagnosis of Chest Pain M G Berry—p 102
- Carbon Tetrachloride Poisoning. H K B Allebach and W R McPhee—p 106
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FOREIGN

Acta Chirurgica Belgica, Brussels

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- *Clinical Results Indications and Complications of Ligation of Inferior Vena Cava in Cardiac Decompensation. W. Cloetens, D. De Mey and P. Wirngen—p. 25
- Chronic Nonspecific Suppurative Pneumonia (Kershner Adams Syndrome) P. Desalve and G. Leroux—p. 38
- A Useful Procedure The Noble Operation A. Van Wieu—p. 50

Ligation of Inferior Vena Cava in Cardiac Decompensation

—Ligation of the inferior vena cava combined with section of the right lumbar sympathetic nerve benefited 8 of 10 patients with cardiac decompensation. Pulmonary and hepatic stasis and peripheral edema and ascites disappeared or were reduced. Marked improvement in response to medical therapy, so that digitalis and diuretics recovered the efficacy they had lost before the operation, was constant and was apparently related to improved renal function, demonstrated by Van Slyke's urea clearance test. Rapid development of collateral venous circulation following ligation of the inferior vena cava probably reduces ascites by drawing the blood to the azygos system and facilitating resorption of the intra-abdominal transudate. Ligation of the inferior vena cava is indicated primarily for relief of the right side of the heart in decompensated patients who can no longer be helped by medical treatment. Edema is not an absolute contraindication except when it is caused by an initial right ventricular insufficiency of the cor pulmonale type, in which case Starling's law is rendered ineffective by the dilation of the right chambers. The indications for the procedure may well be extended to include chronic cardiac insufficiency, which, even though fairly well tolerated, can be expected to benefit from ligation of the inferior vena cava when renal function begins to decline as the heart condition deteriorates. Section of the right lumbar sympathetic nerve, which presents no difficulty because the nerve is always accessible during the operation, increases the effectiveness of the procedure by retarding the return of the circulation to the heart. The psychological preparation of the patient is very important, phenobarbital (Luminal) or morphine, either alone or in combination, should be given for several days before the operation to produce a genuine state of euphoria. Two patients with long standing heart disease who were in a state of anxiety amounting almost to panic before the intervention died as a result of shock, the other eight are alive and much improved. Complications (increase in blood urea with agitation and disorientation, transient auricular fibrillation, or benign phlebitis) were not severe and were rapidly corrected with appropriate treatment.

Annals of Physical Medicine, London

1 151-190 (Jan) 1953

- *Critical Evaluation of Treatment of Traumatic Effusions of Knee J. B. Millard and C. B. W. Parry—p. 156
- Strain-Gauge Dynamometer for Measuring the Strength of Muscle Contraction and for Re-Educating Muscles H. D. Darcus—p. 163
- Postural Function of Popliteus Muscle C. H. Barnett and A. T. Richardson—p. 177
- Mid-Tarsal Arthropathy Associated with Diabetes Mellitus D. C. Arnott and E. G. Redman—p. 180
- Syngomyelia Misdiagnosed as Rheumatoid Arthritis W. Tegner—p. 182

Treatment of Traumatic Effusions of Knee—Effusion into the knee joint, which frequently follows arthrotomy, may subside in a few days, but in a high proportion of cases it recurs when active flexion of the knee is started. If the effusion persists longer than a few weeks, the articular ligaments become permanently stretched, gross wasting of the quadriceps muscle occurs, and full movements of the joint may never be regained. An investigation was carried out in 260 patients with traumatic effusions of the knee to discover the treatment of choice in accelerating the disappearance of an effusion. In 95% of cases the effusion followed meniscectomy, and in 5%

was a simple nonoperative traumatic effusion. All patients were given remedial quadriceps exercises at an Air Force Medical Rehabilitation Unit, in addition, five different treatments were investigated. The average time required for the disappearance of the effusion was 23.3 days, with exercises alone, 23 days with a crepe bandage, 24.8 days with constant current galvanism, 10.3 days with immobilization in a back splint alone, 14.2 days with back splint and anodal galvanism, and 9.4 days with rest in bed and immobilization in a back splint. It is concluded that the use of crepe bandages alone or of galvanism (either through and through" technique or anodal galvanism) has no place in the treatment of knee effusions. The method of choice was found to be complete and continuous immobilization of the knee in a back splint and bandage with intensive static quadriceps exercises. The results further suggest that rest in bed is not necessary to accelerate the disappearance of a knee effusion.

Archives of Disease in Childhood, London

28 1-80 (Feb) 1953 Partial Index

- Remnants of Vitello-Intestinal Duct Clinical Analysis of 88 Cases J. Aitken—p. 1
- Chondrodystrophy with Ectodermal Defects. E. J. Gallagher, M. E. MacGregor and M. Israelski—p. 14
- Typhoid Osteitis in Infancy H. Jackson, I. Kessel, S. N. Javett and P. Kushlick—p. 19
- Case of Osteomyelitis of All Small Bones of Hands and Feet. M. D. Baber—p. 24
- Accidental Poisoning of Young Children D. Swinscow—p. 26
- Sensitivity to Antibiotics of Strains of Bact. Coli Associated with Infantile Gastro-Enteritis J. Smith and W. H. Galloway—p. 30
- Killed Anti-Tuberculosis Vaccine and Hyaluronidase (Diffusing Vaccine) G. Salvio—p. 36
- Haemangioendothelioma of Liver Simulating Congenital Heart Disease in Infant C. B. Levick and J. Rubie—p. 49
- *Treatment of Schoenlein-Henoch Syndrome with Adrenocorticotrophic Hormone (A.C.T.H.) and Cortisone M. G. Philpott and J. N. Briggs—p. 57
- Urinary Excretion of Histamine in Children H. M. Adam and R. G. Mitchell—p. 61
- Absorption of Chloramphenicol in the Newborn D. O'Brien—p. 66
- Diagnostic Pneumoperitoneum J. Rubie—p. 69

Corticotropin and Cortisone in the Schoenlein-Henoch Syndrome—Since a relationship seems to exist between the Schoenlein-Henoch syndrome and diseases such as acute nephritis, rheumatic fever and polyarteritis nodosa, Philpott and Briggs decided to try corticotropin and cortisone in the treatment of Schoenlein-Henoch syndrome. They describe observations on nine children with the Schoenlein-Henoch syndrome, six of whom were given only corticotropin, two first corticotropin and then cortisone, and one only cortisone. The potency of the hormones was judged by the response of the circulating eosinophils and seems to have been adequate in most cases. The general condition improved rapidly in some and slowly in other cases, but similar improvement has been known to occur spontaneously. The hormone treatment did not prevent relapses. Skin manifestations recurred in eight cases. Nephritis developed in three patients in whom it had been absent before treatment, neither did the hormones have any effect on the course of existing nephritis. The authors conclude that corticotropin and cortisone were of no value in treating the Schoenlein-Henoch syndrome. Their use should probably be considered only in cases with a severe constitutional disturbance.

British Journal of Ophthalmology, London

37 129-192 (March) 1953 Partial Index

- Central Areolar Choroidal Sclerosis A. Sorsby and R. P. Crick—p. 129
- Spectral Sensitivity Curves and Absorption of Light by Ocular Media R. A. Weale—p. 148
- Ocular Reaction to Lens Protein Preliminary Study F. W. Law—p. 157
- Quantitative Study of Visual After Images C. A. Padgham—p. 165
- Mandibulo-Facial Dysostosis A. H. Briggs—p. 171
- Scleral Resection—Lamellar or Penetrating? C. D. Shapland—p. 177

British Journal of Surgery, Bristol

40 293-408 (Jan) 1953

- *The Burnt Foot P S London—p 293
 Intussusception of Vermiform Appendix with Report of Seven Cases in Children I Forshall—p 305
 Spontaneous Perforation of Oesophagus J Y W Russell—p 312
 Spontaneous Subarachnoid Haemorrhage Surgical Challenge H R I Wolfe—p 319
 Pneumomediastinum and Pneumothorax Following Block Dissection of Neck D Aiken and H F Smith—p 325
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 Familial Fibromatosis of Small Intestine H Hashemian—p 346
 Jejunal Diverticulosis Some Clinical Aspects J H C Phillips—p 350
 Case of Primary Carcinoma of Jejunum A M Thomas and L S A Boothroyd—p 355
 Malignant Cutaneous Melanoma Review R B Wright D H Clark and J A Milne—p 360
 Intracranial Neoplastic Diseases of Childhood Description of Their Natural History Based on Clinico-Pathological Study of 129 Cases M Bodian and D Lawson—p 368
 Portal Venography by Intrasplenic Injection R M Walker J H Middlemiss and E M Nanson—p 392

The Burned Foot—This paper describes observations on 301 burned feet and their management. There were 247 patients (180 males and 67 females). About half of the patients, that is, 119 men (131 burned feet) and 3 women (4 burned feet) sustained their burns while at work. Eighty-eight of the 125 persons who sustained domestic burns were scalded with hot water or tea and 5 with gravy or hot fat. Grafting was employed on 187 of the burned feet in 61 on the day of burning, in 27 from 1 to 7 days after, and in 99 more than a week after the burn was sustained. Repeated grafting operations were required in 39 of the 187 feet. The authors stress that the best treatment for totally destroyed skin is excision and grafting within a few hours of burning. All the surviving 68 patients who did not require grafting made full recoveries. Of 174 patients who had grafts on one or both feet, 155 recovered fully and 15 made satisfactory recoveries. Only four obtained poor results. Two were boys with badly burned feet, one was an arthritic elderly man, and the fourth was a heavy woman with varicose veins and gravitational edema. The value of primary excision and grafting of totally destroyed skin was confirmed, and the suitability of thin split skin grafts for the replacement of burned skin on all parts of the foot, including its weight bearing surfaces, was established.

Canadian Medical Association Journal, Montreal

68 205 318 (March) 1953

- Mental Hygiene in Health Unit H Siemens—p 205
 The General Practitioner and Emotional Disturbances M Lattey—p 209
 Recent Advances in Dermatology G M Lewis—p 212
 Mycotic Aneurysm of Abdominal Aorta Complicating Subacute Bacterial Endocarditis L D Wilcox and J H Fisher—p 217
 Hydrogenated Ergot Alkaloids in Treatment of Intermittent Claudication J C Luke and B N Marien—p 221
 *Gold Therapy in Rheumatoid Arthritis in Private Practice T E Nugent, F W Nugent and F O'Neill—p 225
 Cardiac Standstill G Murray—p 227
 Outbreak of Tuberculosis in Community G E Maddison and C C Baird—p 231
 Leukaemia and Pregnancy L J Harris—p 234
 Idiopathic Pericarditis E G Cross and W B Charles—p 237
 Proctosigmoidoscopy for Family Physician F B Bowman—p 244
 Pheochromocytoma An Alternative Surgical Approach D H Barnbrook—p 245
 Problem of Haemorrhage from Duodenal and Gastric Ulcer W A McElmoyle—p 247
 Acute Appendicitis and Appendicular Peritonitis J Lavoie and R Fortin—p 251
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 *Periarthritis of Shoulder and Coronary Disease H S Robinson J C Colbeck and A W Bagnall—p 256
 Plasma Augmenters in Clinical Surgery R F Ohlke and J J Scales—p 260
 An Investigation of Three Techniques of Perforating Keratoplasty H W Laws—p 262
 Defence Research Medical Laboratories Their Character and Opportunities M G Whillans—p 265
 Thrombocytopenic Purpura Complicating Infectious Mononucleosis R. Volpe B B Sparks and L S Mautner—p 269
 Treatment of Bladder Neck Obstruction W E Collins—p 272.

Gold Therapy in Rheumatoid Arthritis.—After having tried the various treatments that were recommended for rheumatoid arthritis since 1936, including bee venom, vaccine, hormone therapy, massive doses of vitamins, gold therapy and corti-

sone, the authors of this paper are now returning to gold therapy as the most effective treatment. Of 29 patients in whom they used gold sodium thiomalate (Myochrysine), 17 had remissions, 9 showed improvement and in 3 the treatment failed. Toxic reactions, in the form of eruptions of the skin and mucous membranes, occurred in two of the cases. They feel that the diagnosis of rheumatoid arthritis is established if a patient presents a progressive polyarthritis with muscle wasting and periarticular thickening. Subcutaneous nodules and marked small joint crippling complete the picture. With these findings, a fast sedimentation rate corroborates the diagnosis. Treatment is withheld in nephritis, in liver damage, and in pregnancy. The "burnt-out arthritic" should not be treated, i.e., the anemic polyarthritic patient who has lived with his arthritis for decades and whose sedimentation rate is normal. This is the type of case in which gold is highly toxic and ineffective. The gold preparation is injected weekly in 50 mg doses, (first two doses 25 mg) until a total of 1,000 mg has been administered. After that, the injections are given monthly in 50 mg doses.

Periarthritis of Shoulder and Coronary Disease.—The etiology of painful, stiff or frozen shoulder is often obscure, but numerous authors have noted the frequent association of shoulder disability with severe coronary disease. After citing some literature reports on this problem, Robinson and associates say that in 35 routine autopsies in which the subacromial bursa and biceps tendon sheath were examined, 6 cases of severe coronary disease were included. Four of these patients with coronary disease showed lesions in the subacromial bursa and two of these in the biceps sheath as well. The only other individual showing significant lesions in the shoulder region had chronic rheumatoid arthritis with bursal involvement.

Deutsche medizinische Wochenschrift, Stuttgart

78 317 356 (March 6) 1953 Partial Index

- Segmental Resection in Pulmonary Tuberculosis E Derra and H Rink—p 317
 Cleavage of Procaine Hydrochloride by Serum Esterase Clinical Study G Taubmann and E Tresser—p 320
 Effect of Ganglion Blocking Agents on Circulation Preoperative Recognition of Patients who are Threatened by Controlled Hypotension R Wenger D Doneff and E Vyslonzil—p 322
 *Treatment of 100 Patients with Acute Hematogenous Osteomyelitis with Penicillin H Waskönig—p 327

Penicillin in Acute Hematogenous Osteomyelitis.—Since 1947, when penicillin became available in sufficient amounts in Germany, 100 patients with acute hematogenous osteomyelitis have been treated with this antibiotic. Of these 100 patients, 84 had an abscess on admission and puncture was made immediately. In the early days of penicillin therapy puncture was followed by a local injection of 25,000 units of penicillin, but the last 42 patients were given local injection of 100,000 to 200,000 units, simultaneous parenteral administration of the antibiotic was carried out in doses of 400,000 to 800,000 units daily, with an average total dose of 13,500,000 units, but in individual cases doses of even 30,000,000 to 36,000,000 units were given. The involved part of the body was immobilized with a fenestrated plaster of Paris cast. Roentgenologic examination of the 100 patients within the first days of their disease revealed bone changes in 21. After treatment with penicillin the dose of which (700,000 to 1,600,000 units) apparently was not sufficient in six patients, sequestrums were demonstrated roentgenographically in 10 and cavity formation and destruction of bone respectively in 8. Of the 79 patients who did not show any bone changes on the first roentgenologic examination, 6 showed formation of sequestrums on the final roentgenologic examination, in two of the six the sequestrum again became part of the bone, while destruction of the bone resulted in the remaining four. Before penicillin was available for treatment, the mortality rate for acute hematogenous osteomyelitis varied from 10 to 28%. Not a single death occurred among the 100 patients treated with penicillin. Purulent involvement of joints made the prognosis of acute hematogenous osteomyelitis unfavorable before penicillin therapy was practiced. Of the authors' 100 patients, 22 had involvement of joints but stiffening of the joint resulted in only 1 patient.

Recurrences were observed in seven patients, all of whom had not yet received the large doses of penicillin that were employed later on. A complete cure was obtained by sequestrectomy combined with penicillin therapy in five and by penicillin therapy alone in two. The results of treatment thus have been improved considerably when compared with those of the prepenicillin era. Early institution of local and parenteral treatment in addition to sufficiently high doses and immobilization seems to warrant success. Despite the highly satisfactory results of conservative management, patients with acute hematogenous osteomyelitis always should be treated at the surgical department because of the great risk associated with this disease, but primary surgical treatment seems to be indicated only in cases of penicillin resistant pathogenic agents and in patients with a highly toxic form of the disease.

Journal Obst & Gynaec Brit. Empire, Manchester

60 1-140 (Feb) 1953 Partial Index

- Modern Treatment for Vesicovaginal Fistula A H Aldridge—p 1
Causes and Prevention of Stillbirths and First Week Deaths II Evidence from Aberdeen Clinical Records D Baird A M Thomson and E H L Duncan—p 17
Case of Unilobular Quadruplets W N Searle and F Denny—p 31
Premature Rupture of Membranes M P Embrey—p 37
Face and Brow Presentation N Morris—p 44
Acute Intestinal Obstruction Complicating Pregnancy Report of Two Cases A H Baker J Barnes and U G Lister—p 52
Pregnancy in Addison's Disease C F Rolland J D Matthews and G D Matthew—p 57
Growth of Foetal Head in Last Weeks of Pregnancy I Macdonald—p 61
Male Factor in Human Sterility B Sandler—p 67
Prevention of Eclampsia Australasian Experiment B Dawson—p 80
Sarcoma Boytrioles of Cervix with Two Case Reports M Dunster and D Bennett—p 85

Klinsche Wochenschrift, Berlin

31 97-144 (Feb 1) 1953 Partial Index

- Exclusion of Heart Sensitivity by Local Anesthetics in Cardiac Surgery H F Zipf—p 97
Problem of Constitutional Granulation Anomalies of Leukocytes in Their Relation to Enchondral Dysostosis O Ullrich and H R. Wiedemann—p 107
*Preliminary Results of Experimental Investigations on the Myasthenic Syndrome A. Stuppler—p 115
Fundamentals of Normal Electroencephalogram During Childhood R Garsche—p 118
Disturbances in Digestion and Resorption of Iron as Pathogenetic Factors in Essential Hypochromic Anemia. F Thedering Jr and R Beck—p 127

Studies on the Myasthenic Syndrome—Stuppler reviews clinical and experimental observations that he made in the course of two years on 22 patients with myasthenia. The etiological interpretation of myasthenia has taken two directions (1) the acetylcholine theory of Torda and Wolff and (2) the theory suggested by Wilson and Stoner, which assumes the presence in the blood of some substance that blocks the neuromuscular transmission. Stuppler cites factors that speak against the acetylcholine theory and for the appearance of so-called blockade substances, and he feels that his own investigations suggest the following interpretation as a result of the appearance of specific blocking substances after muscular exertion, the neuromuscular transmission becomes more difficult in myasthenia gravis pseudoparalytica, the potential of the end-plate decreases, and it no longer reaches the threshold value required to release the action potential in case of complete blockage. There are various degrees there may be only slight disturbances, which cause only a moderate decrease in the peak potential. In case of higher concentrations of the blocking substance, the diphasic muscular potential may almost completely disappear, as a manifestation of only a localized stimulus, the end plate current, and finally there may be complete muscle paralysis resembling that produced by curare. Attempts at inactivation suggest that the blocking substance is of enzyme character and that ionic shifts can be excluded as a determining factor. In addition to this purely neuromuscular mechanism, Stuppler assumes an additional muscular effect on the marginal phase 2, the myogenic base-plate. In

denervated dogs he was able to still obtain weakened myasthenic effect, and in this way he was able to exclude for experimental purposes the end plate effect, which doubtlessly predominates in the pathophysiological process. The fact that prostigmine has a demonstrable effect on the denervated muscle (a fact which was demonstrated by Ricker and Westcoe, as well as by Stuppler's own unpublished experiments) appears to corroborate this assumption. The therapeutic effect of prostigmine on myasthenia gravis therefore seems to be twofold as a ferment it exerts an inhibiting influence on the cholinesterase metabolism, but it also stimulates the metabolism of the contractile element itself.

Lancet, London

1 403-450 (Feb 28) 1953

- Sympathectomy in Treatment of Hypertension Review of 122 Cases D M Morrissey V S Brookes and W T Cooke—p 403
*Temporal Arteritis and Its Treatment with Cortisone and ACTH A G W Whitfield W T Cooke P Jameson Evans and C Rudd—p 408
*Controlled Hypotension in Neurosurgery with Special Reference to Hypotension Induced by Pneumatic Suction Applied to Legs A James R L Coulter and J W Saunders—p 412
Clinical Tests Relating to Mental Activity in Infancy E Collis—p 416
Spontaneous Rupture of Proximal Jejunal Loop as Late Complication of Gastrectomy F Smith—p 421
Universal Oronasal Pressure Oxygen Mask A B Goorney—p 422
Isopropyl Alcohol as Substitute for Ethyl Alcohol in Certain Biochemical Tests J W Keyser and P G Sanders—p 422

Treatment of Temporal Arteritis with Cortisone and Corticotropin—Temporal arteritis is part of a generalized vascular disease of unknown etiology occurring only during the degenerative period of life. Severe headache is a constant feature of the disease, often persisting for weeks and preventing sleep. It is commonly confined to the areas of the temporal and occipital arteries, and the scalp may be so tender that mastication and the pressure of the head on a pillow are painful. Ocular involvement is common, having been reported in from 33 to 55% of cases, and may cause partial or total blindness. Treatment was formerly limited to section of the affected artery, but cortisone and corticotropin have lately been used with favorable results by several workers. Twelve patients, aged 66 to 83 years, with unequivocal temporal arteritis, in 10 of whom the vision was affected, have been treated by the authors with cortisone (orally or intramuscularly) or corticotropin (intramuscularly or intravenously) during the last 18 months. Pyrexia, head pains, and arterial tenderness subsided rapidly, appetite improved, and in some cases apathy and misery were replaced by alertness and cheerfulness. Maintenance therapy is needed until the disease reaches its natural end, premature cessation of treatment is followed by the return of symptoms. Total blindness and long standing partial loss of vision were not altered by cortisone or corticotropin, but partial loss of vision that had occurred not more than 10 days before in five patients was somewhat improved. The chief value of the treatment in such cases is probably to safeguard any remaining vision.

Controlled Hypotension in Neurosurgery—Induced hypotension was used to reduce bleeding and intracranial tension in 150 neurosurgical operations. The hypotension was induced by hexamethonium bromide plus, in 50 cases, controlled pneumatic suction applied to the legs and, in 100, posture change. Comparison of the results obtained in these cases with those obtained in 150 others without induced reduction in blood pressure shows that controlled hypotension, especially when administration of hexamethonium bromide is accompanied by negative pressure applied to the legs, leads to decreased mortality, decreased need for transfusions, and a slightly shorter duration of anesthesia. The suction technique makes it possible to produce adequate hypotension with an average tilt to the table of only 5 degrees, and once the blood pressure has been reduced to the desired level, further doses of hexamethonium bromide are usually unnecessary. The result may be considered satisfactory when bleeding is minimal or slight. A fall in intracranial tension almost always accompanies the fall in arterial pressure. The suction technique can be used to keep the blood

pressure at any desired level over a wide range or to vary it for specific purposes. Reduced suction, for instance, will permit the blood pressure to rise temporarily so that the surgeon can determine the adequacy of the hemostasis. Injurious extremes of hypotension can be avoided by making frequent determinations of the blood pressure. The effect of hypotension on patients with coronary damage is not yet clear, consequently, electrocardiograms should be made during the operation in doubtful cases. The danger of cerebral anoxia is largely avoided by the fact that the patient's position can be kept nearly horizontal. There were 10 deaths among the patients in whom hypotension was induced, as compared with 24 in the control group. The smaller death rate in the first group was ascribed to improved surgical treatment made possible by the decreased bleeding and lowered intracranial pressure resulting from the hypotension.

Medical Journal of Australia, Sydney

1 169 208 (Feb 7) 1953

- History Hypothesis and the Heart H R Love—p 169
 Rectal Administration of Sodium Thiopentone to Children I H McDonald—p 174
 Isonicotinic Acid Hydrazide in Treatment of Pulmonary Tuberculosis. A J Proust E G Beacham and H S Allen—p 179
 *Convalescent Rubella Gamma Globulin as Possible Prophylactic Against Rubella S G Anderson and H McLorinan—p 182

Convalescent Rubella Gamma Globulin for Prophylaxis—Convalescent rubella gamma globulin has been available for several years to medical practitioners in Victoria. This paper reviews observations in three clinical trials. The globulin was given intramuscularly in doses of 2 to 4 cc as soon as possible after exposure to the virus, but not later than 72 hours after such exposure. The first study had been reported in part in 1950, but the absence of a control series was a weakness. Furthermore, before any final assessment of the protective value of the serum was possible, it seemed necessary to consider the following factors: 1. Was the primary case really rubella? 2. Was the exposed pregnant woman immune from a previous unrecognized or forgotten attack? 3. Was the duration and intensity of the contact sufficient to have produced rubella if gamma globulin had not been administered? Taking together the cases reviewed by McLorinan in 1950 and those observed since that time, 424 women exposed to rubella received 2 cc of convalescent rubella gamma globulin by intramuscular injection. Five developed rubella. Similarly of 388 who received 4 cc of gamma globulin, four developed rubella. Thus 9 women had rubella of 812 who were said to have been exposed to the disease and who were given gamma globulin. In the second study globulin was administered to 15 of 24 volunteers who had been artificially infected with rubella virus. Under these conditions the globulin appeared to afford no protection. In the third study globulin was used in a controlled study of a natural epidemic of rubella. The results were consistent with partial protection, but the figures were not statistically significant.

Minerva Ginecologica, Turin

5 1 56 (Jan 15) 1953 Partial Index

- Transperitoneal Puncture of Amnion and Its Possibilities in Clinical Investigation P N Siliquini—p 4
 Eosinophilia in Secretions and in Tissues as Expression of Disturbed Reactivity D Cazzola—p 11
 *Adrenal Cortex Response to Minor Hormonal Stress Before Laparotomy G Massone—p 15

Thorn's Test with Extract of Posterior Lobe of Hypophysis—Corticotropin is the drug of choice in performing Thorn's test but, because of its high cost, Italian physicians have substituted epinephrine for it. The results with this drug, however, are not always reliable, and in doubtful instances the test has to be repeated with corticotropin. Recently the author has used an extract of the posterior lobe of the hypophysis that stimulates the adrenal cortex indirectly through the hypothalamic-diencephalic system. Thorn's test performed preopera-

tively in surgical patients acts like a trial stress on the organism and from the patient's hematological and metabolic reaction to it, it is possible to foretell how he will resist and react to the greater stress of the intervention. The author compared the results obtained with corticotropin, epinephrine, and the posterior pituitary hormone (Postipofisi) in 32 patients who were to undergo laparotomy because of gynecological lesions. Thorn's test was performed on successive days using a different drug each day. Doses used were 24 mg of corticotropin, 0.3 mg of epinephrine in a 1:1,000 solution, and 10 units of posterior pituitary hormone. All drugs were given subcutaneously. In 11 patients who were in good general condition and who showed no evidence of adrenal dysfunction, the test with corticotropin and posterior pituitary hormone indicated normal adrenal cortical function, whereas the test with epinephrine showed hypofunction in four of these patients. In 12 of the remaining 21 patients who were in poor general condition the test with epinephrine indicated hypofunction of the adrenal cortex, while the test with corticotropin and posterior pituitary extract indicated hypofunction in only 9. Seven of these nine patients proved to have neoplastic lesions. In all of these patients the ratio between the urinary uric acid and creatinine confirmed the blood findings. On the basis of these results, the author advocates the use of this extract of the posterior lobe of the hypophysis rather than epinephrine in Thorn's test.

Minerva Medica, Turin

44 295 330 (Feb 7) 1953 Partial Index

- *Duodenal Secretin in Therapy G Labò and G Lenzi—p 295
 Massive Doses of Sodium Succinate in Therapy of Multiple Sclerosis: One Year of Clinical Experience M Ferraris and G Menduni—p 303
 Pyridoxine and Adrenal Cortex Extract in Pediatrics C Torricelli and F M Longa—p 312
 Medical Treatment of Multiple Pulmonary Abscesses by Means of New Ester of Penicillin with an Elective Pulmonary Concentration I De Gennaro—p 317

Secretin in Patients with Gastrointestinal Diseases—The authors report on the results with secretin in the treatment of patients with diseases of the stomach, duodenum, pancreas, and biliary system. A dose of 8 mg, which after the first improvement was reduced to 4 mg, was given to the patients in two intramuscular injections before the main meals every day for 20 to 30 days. The results were good in 11 patients with chronic gastritis and satisfying in 8 with gastroduodenitis; dyspepsia decreased and sometimes disappeared, gastrointestinal function was restored to normal, and headache when present, disappeared. This hormone was especially helpful in patients with gastroduodenitis because it stimulated the pancreatic and biliary secretions, improved their circulation, and possibly had a direct action on the duodenum. Patients with chronic pancreatitis and dyskinetic and inflammatory alterations of the gallbladder and bile ducts were also benefited by the hormone, which increased the production of bile, improved its circulation, decreased its viscosity and mucin content and changed its pH. Improvement was also obtained in patients with atonic gallbladder diseases and biliary dyskinesia secondary to cholelithiasis or cholecystectomy. Secretin decreased the number of painful attacks and improved the efficiency of digestion. In eight patients with catarrhal jaundice secretin was most effective during the phase of resolution in that it accelerated the normalization of the liver and eliminated the digestive irregularities that are frequent in this period. Good results were obtained in 13 patients with chronic and acute colitis and enterocolitis. The secondary manifestations associated with hepatic and gastrointestinal disturbances disappeared quickly in all these patients, and thus the primary disturbance was improved. Urticaria disappeared in 7 of 16 patients who received the hormone, and there was slight improvement in two of seven patients with eczema. There were no signs of intolerance to the hormone. The patient's reactivity to secretin should be tested during the first days of treatment by using small doses (1 to 2 mg.) for the first injections.

Nordisk Medicin, Stockholm

49 201-240 (Feb 6) 1953 Partial Index

- *Ménière's Syndrome and Its Treatment L Preber —p 201
Deafness and Deafmutism in Children with Special Reference to Rubella.
B Ivstam —p 208
Uremic Lung—Wet Lung? N Alwall A Lundequist and O Olesen
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—p 216
Hemolytic Anemia in Cancer of Stomach H Veflingstad —p 218

Ménière's Syndrome and Its Treatment—Auditory impairment, tinnitus, and paroxysmal vertigo are the symptoms of Ménière's syndrome and are unaccompanied by organic nervous disorder or clinically demonstrable affection of the ear. The picture is dominated by the attacks of vertigo. The anatomic basis for the syndrome is thought to be increased labyrinthine pressure due to endolymphatic hydrops of the labyrinth. As the etiology of the labyrinthine hydrops is not clear the term "Ménière's syndrome" is preferred. A vestibular lesion can be demonstrated objectively in patients with Ménière's syndrome by quantitative rotation tests (cupulometry) and caloric stimulation according to Hallpike. Recruitment, pathognomic for a peripheral labyrinthine lesion, can readily be registered by audiometry. Conservative treatment is advantageous when the pathological changes in the labyrinth are reversible. At present it usually consists of restriction of salt and fluid intake and administration of ammonium chloride or of nicotinic acid and histamine according to Atkinson. Surgical treatment is indicated in incapacitating cases that have proved resistant to all forms of long-continued conservative treatment. Such cases are believed to make up from 10 to 20% of all cases of Ménière's syndrome. In treatment of unilateral cases Preber advocates a labyrinth operation rather than intracranial intervention with neurotomy, as it is equally effective in relieving the vertigo and is a less serious intervention and without risk of postoperative complications. The operative technique is still to be found that will relieve both vertigo and tinnitus without injury to the hearing. In the ear clinic of the Sodersjukhus conservative treatment of 106 cases of Ménière's syndrome gave improvement with regard to vertigo in 71%. In 29 cases surgical treatment was necessary.

Philippine Medical Association Journal, Manila

29 1 46 (Jan) 1953

- Surgical Considerations in Nephrolithiasis L F Torres Jr —p 1
Casarean Section Morbidity and Mortality at Philippine General Hospital
1945-51 G T Aragon and H Baja Panillo —p 6
Subtossan A Weapon of the General Practitioners A A Ramirez and
L. A Ramirez —p 12

Practitioner, London

170 105 216 (Feb) 1953 Partial Index

- Treatment of Burns A B Wallace —p 109
Shock and Haemorrhage R Clarke —p 119
Abdominal Injuries J B Oldham —p 126
Civilian Chest Injuries R Belsey —p 134
Injuries of the Spine and Pelvis J Charnley —p 142
Injuries of the Hand J B Kinmonth —p 150
Surgery of Trauma with Particular Reference to Atomic Warfare
H Ogilvie —p 159
Use of Household Detergents and Their Dangers G Hodgson —p 166

Presse Médicale, Paris

61 145-164 (Feb 7) 1953 Partial Index

- *The Syndrome "Diaphragmatic Hernia or Diaphragmatic Eventration and Venous Thromboses." C Lian F Siguier and J J Welti —p 145
Treatment of Venous Thromboses with Dicumarol Ethyl Acetate P Izarn —p 146
Aspiration Biopsy of Kidney B Saad —p 148

Diaphragmatic Hernia or Diaphragmatic Eventration and Venous Thromboses.—Repeated and apparently spontaneous venous thromboses in various parts of the body may be caused by diaphragmatic hernia of the stomach. Observation of four patients in whom venous thromboses accompanied diaphragmatic hernia or diaphragmatic eventration confirmed the causal connection between these conditions and established the im

portance of recognizing their coexistence as a new syndrome. Repeated small hemorrhages from the gastric mucosa and the hypochromic anemia frequently accompanying diaphragmatic hernia probably lead to a defensive hypercoagulability, which in turn results in venous thromboses. Surgical correction of the hernia or eventration may be necessary in some cases, but medical treatment should be tried first. Iron is the remedy of choice, because it may correct both the anemia and the thromboses, which tend to appear during episodes of anemia. Prolonged anticoagulant treatment, which might result in serious gastrointestinal hemorrhages, should not be given to patients with a history of repeated venous thromboses until the possibility of latent diaphragmatic hernia has been ruled out by radiological and other examination.

Semana Médica, Buenos Aires

60 129 164 (Jan 29) 1953 Partial Index

- Physiopathologic Treatment of Toxicosis in Infants J P Garrahan and J M Albores —p 129
*Endometrial Carcinoma with Biopsy in Disagreement with Surgically Removed Specimen R Gandolfo Herrera —p 135
Neurohypophyseal Regulation of Diuresis by Changes of Environmental Temperature A E Imbriano —p 142

Carcinoma of Endometrium.—There are in the literature more than 100 cases in which endometrial biopsy showed carcinoma but the surgically removed uterus did not show carcinoma. Two cases are reported by the author in married women at the menopausal age. Both had gynecologic complaints of several years' duration. The uterus of the first woman, who had never conceived, had an increased volume (9 cm at hysterometry) and its surface was irregular. The Clark test for cancer of the uterus gave positive results. A curettage biopsy was diagnosed as showing glandular cystic hyperplasia and a focus of adenocarcinoma. The uterus and both adnexae were removed. The uterus showed signs of deep curettage and intramural myoma, but there were no remnants of the carcinomatous lesion. The second patient, who had four children, had a uterus of normal size. The neck of the uterus was held open by a protruding polypus, which slightly bled when touched with the forceps, came out with the forceps after a slight twisting and showed microscopically glandular hyperplasia and neoplasia with spreading to the lymphatics. The patient refused hysterectomy. Both patients regained normal health as soon as menopausal disorders were over. They are well 13 and 6 years after the operation and biopsy, respectively. The author states that biopsy does not show the degree of penetration of endometrial carcinoma and diffusion of the disease to nearby organs. He believes it advisable to follow Kaufman's classification of endometrial carcinoma, which includes group 0 in which carcinoma is found in tissues taken by curettage but not in the surgically removed specimen, group 1 in which carcinoma is restricted to the endometrium, group 2 with penetration to the myometrium but without reaching the serosa, group 3 with spreading to adjacent organs, and group 4 with extrapelvic metastases. The author concludes that a small early lesion of endometrial carcinoma can be entirely removed by biopsy. However, if surgery is resorted to the rational treatment of the disease is radical removal of the internal genital organs.

Tidsskrift for Den Norske Lægeforening, Oslo

73 121-168 (Feb 15) 1953 Partial Index

- Impressions from Poliomyelitis Epidemic in Copenhagen I Alvik P Berdal O Melbye and others —p 121
*Malignant Tumors in Epipharynx Review K Berg —p 128
Hydatid Cyst in Lung K Arnesen —p 132.

Malignant Tumors in Epipharynx.—Berg says that many malignant tumors of the epipharynx are overlooked, but the frequency of these tumors is estimated to be between 1/2 and 1% of all cancers. They are characterized by polymorphic, varying and often misleading symptoms. The clinical symptoms comprise local symptoms from the nasopharynx, due to growth of the tumor, symptoms from the ear, and symptoms of different kinds from cranial nerves. Diagnosis is often difficult. The primary tumor may be insignificant in size and over

shadowed by metastases and lesions of cranial nerves. Many of the patients are young, some of them children, and often the possibility of malignant tumor is not considered. Inflammation of glands in the neck, paralysis of cranial nerves, especially with paresis of eye muscles, or symptoms from the nerve group under the jugular foramen should call for the attention of an experienced rhinologist. Besides local examination with biopsy, examination of the regional lymph nodes, neurological examination, and roentgen examination should be routine procedures. The treatment is fractionated, protracted radiotherapy by the Coutard technique, extending over many weeks. The result depends on early diagnosis, radiosensitivity, tendency to metastasis, ways of metastasis, and tendency to recurrence. Radiosensitivity is not synonymous with radiocurability. Lymphosarcomas, reticulosarcomas, lymphoepitheliomas, transitional cell carcinomas, and the slightly differentiated carcinomas all react well to roentgen treatment, but the prognosis is affected by the marked tendency to recurrence and to metastasis. Freedom from recurrence after five years' control is reported in fully 20% of the cases in larger series. Recurrences are more resistant to radiotherapy, the patient cannot tolerate adequate doses, and the final prognosis is extremely unfavorable because of spread and supervening cachexia. In the more infiltrating forms spread to the membranes of the brain with secondary infection there or massive carotid hemorrhages may be the terminal stage.

South African Medical Journal, Cape Town

27 73 92 (Jan 24) 1953 Partial Index

- *Portacaval Shunt Operation with Special Reference to Use of Vein Grafts P. Theron—p 73
- Sclerema Neonatorum with Special Reference to Case Successfully Treated with ACTH C. G. Williams—p 78
- Cat-Scratch Disease Non Bacterial Regional Lymphadenitis or Benign Lympho-Reticulosis of Inoculation Report of Case A. E. Dreosti and J. F. Murray—p 81

Portacaval Shunt Operation with Vein Grafts—Theron discusses the operations in current use for cirrhosis of the liver, particularly the shunt procedures. The splenorenal technique seems indicated in extrahepatic block or in cases of Banti's syndrome in which hypersplenism is of such degree as to necessitate splenectomy. However, in the great majority of patients with portal hypertension due to hepatic cirrhosis, portacaval anastomosis more effectively reduces portal pressure. The author feels that Blakemore's more favorable results in comparison to other surgeons may be explained not so much by lesser technical ability of other surgeons but by the lack of adequate facilities for specialized investigation such as portal bed venography and measurement of liver blood flow and total circulating blood volume, together with detailed study of liver function and associated metabolic disturbances. Success in this operation is largely dependent on accurate selection of cases, and the routine tests of function frequently prove deficient, in that they fail to indicate liver damage constituting inoperability. Furthermore, inadequate preparation seems responsible for many operative deaths. The surgical technique recommended by Blakemore necessitates extensive mobilization of the portal vein, which is then divided and implanted into the inferior vena cava as an end-to-side anastomosis. More recently attempts have been made to create a side-to-side shunt with the object of preserving continuity of the portal vein. This method is frequently impracticable. The Blakemore operation is also open to criticism on the grounds that it often fails to reduce portal pressure adequately. In an attempt to reduce the operative mortality and to increase the efficiency of the portacaval shunt, Theron used vein grafts as a means of creating large H shunts between the two veins. Since August, 1951, four such operations have been performed with apparent success, in that the patency of the vein grafts has been maintained. A transverse upper abdominal incision is used. Mobilization of the duodenum and pancreas is restricted to a minimum. The free border of the portal vein is exposed sufficiently to allow the application of a Southwick clamp. Usually, mobilization of a 1 in (2.5 cm) segment of vein is adequate. An opening is made in the portal vein

and anastomosis of the vein graft performed. Everting mattress sutures are used to ensure intimal apposition. Suture of the vein graft to the inferior vena cava is facilitated by a curved clamp so as to produce only partial occlusion of the recipient vessel. The restricted mobilization of portal vein made possible by this technique reduces blood loss and operative hazard. The size of stoma is limited only by that of the vein graft. To date an autogenous graft of a segment of the superficial femoral vein has been employed, but now preserved segments of vena cava are available, and it is possible to create a stoma with a diameter larger than that of the portal vein so as to allow for postoperative fibrous contracture. With use of a clamp of the Southwick type the portal vein is not completely occluded during the anastomosis, thereby reducing the danger of subsequent mesenteric venous thrombosis. The continuity of the portal vein is preserved, the liver is not completely deprived of portal blood, and its regenerative powers are not unduly handicapped.

Transactions Royal Soc Trop Med and Hyg, London

47 1 84 (Jan) 1953 Partial Index

- Bilharziasis in South Persia J. M. Watson—p 49
- Diethylcarbamazine in Treatment of Onchocerciasis J. C. L. Adams—p 66
- *Poliomyelitis in Relation to Intramuscular Injections of Quinine and Other Drugs W. F. Townsend-Coles and G. M. Findlay—p 77
- The Periodicity of Microfilariae III Transfusion of Microfilariae into Clean Host F. Hawking—p 82

Poliomyelitis in Relation to Intramuscular Injections—Paralytic poliomyelitis has been reported following intramuscular injections of a variety of substances. In children of the Northern Sudan, cases resembling paralytic poliomyelitis had been observed to follow injections of quinine. The injections, which had been given into the buttock, had been followed after an interval of a few days or weeks by paralysis in the legs. When one buttock only had been injected, the paralysis was usually most marked in, or confined to, the corresponding leg. Cases of poliomyelitis without a history of injection were uncommon. Eight cases are presented that illustrate this condition. In seven children paralysis of the leg followed intramuscular injection of quinine within a month, and in one case, it followed the injection of penicillin. In instances where some form of trauma in an area precedes the onset of poliomyelitic paralysis, there are two possible explanations, either the poliomyelitis virus gained entrance from the exterior into the traumatized area, whence it ascended by the motor nerves to the corresponding anterior horn cells, or the poliomyelitis virus was present in the body before or shortly after the time when the area was traumatized. Although the contamination of syringes and needles with poliomyelitis virus cannot be entirely excluded, it seems highly improbable that it is the explanation for the considerable number of cases of poliomyelitis involving areas subjected to the trauma of injection. If the virus of poliomyelitis is present in the nervous system, and if the trauma caused a localized area of diminished resistance where the virus could proliferate rapidly, the relation of trauma to paralytic poliomyelitis would be explained. The authors cite literature reports indicating that various types of injections cause a more rapid proliferation of virus, and they feel that it is perhaps not remarkable that intramuscular injections of quinine should function in this way, since the intramuscular injection of quinine is known to cause necrosis at the site of injection. Poliomyelitis is a risk that must be taken into account in giving intramuscular injection of quinine and other irritant solutions to children.

Tubercle, London

34 67 98 (March) 1953 Partial Index

- Plombage Review and Report on Use of Polystan. R. Laird and T. W. Stephens—p 68
- Short Term Postural Reduction as Prelude to Active Treatment. J. P. Lyons—p 87
- Bilateral Fracture of Femoral Neck Following Grand Mal Fits in Tuberculous Patient S. G. Dhanik—p 95

BOOK REVIEWS

Biological Hazards of Atomic Energy Edited by A. Haddow. Being papers read at conference convened by Institute of Biology and Atomic Scientists Association, October 1950. Cloth \$8. Pp. 235 with illustrations. Oxford University Press, 114 Fifth Avenue, New York 11. Amen House, Warwick Sq., London E.C.4. 1952.

This book consists of 24 articles by different authors on various aspects of the injuries resulting from the impact of gamma rays and other ionizing radiations on living organisms. The early chapters deal with biochemical, genetic, and carcinogenic effects; others discuss the difficult problem of tolerance levels and the corresponding problem of protecting persons who work with atomic energy, and two concluding chapters deal with problems of ethics and citizenship.

The chapters vary in the amount of technical detail, but, in general, they avoid entanglement in minutiae, present a problem in interesting fashion, and give references to original publications. Protective measures taken in connection with the atomic reactor at Harwell, England, and at the Institute of Radiophysics in Sweden are especially interesting. Of practical concern to many physicians is the chapter on the control of hazards and irradiation in the clinical use of radioiodine. The book has author and subject indexes and is illustrated. It is a commendable work.

Diagnostic Manual in Speech Correction: A Professional Training Work book. By Wendell Johnson, Ph.D., Professor and Chairman of Council on Speech Pathology and Audiology, University of Iowa. Iowa City. Frederic L. Darley, Ph.D., Assistant Professor of Speech Pathology and Audiology, and D. C. Sprlestersbach, Ph.D., Associate Professor of Speech Pathology and Audiology. Loose leaf paper \$2.50. Pp. 221. Harper & Brothers, 49 E. 33rd St., New York 16. 1952.

This monograph is composed of 22 units that describe and explain methods of diagnosing and recording speech performance. Nineteen different test forms to be completed in the examination of the person with defective speech are included. The basic units and appendixes of the text explain and assist in the proper completion of these forms. The examination forms cover such subjects as voice and connected speech examination, articulation testing, peripheral speech mechanism examination, examination of harshness, examination of nasality, introduction of stuttering, Iowa scale of attitude toward stuttering, Iowa unimanual and usage questionnaire, and rating sheets for student clinicians. This monograph is written primarily for use by educators interested in diagnosis and correction of speech defects, but it will also be of interest to physicians concerned with total rehabilitation.

Office Management of Ocular Diseases. By William F. Hughes, Jr., M.D., Professor and Head, Department of Ophthalmology, University of Illinois College of Medicine, Chicago. Cloth \$9. Pp. 452 with 120 illustrations. Year Book Publishers, Inc., 200 E. Illinois St., Chicago 11. 1953.

This book presents current diagnostic and therapeutic procedures found useful and effective in the office management of ocular diseases. Discussion of techniques is generally limited to those with which the author is familiar, and the bibliography lists only references that amplify the text, comment on a controversial topic, or describe techniques untried by the author. Practical hints on techniques of examination and interpretation of findings, extensive tables on differential diagnosis, and informative sections dealing with chemical burns and beta radiation are commendable features. The concluding section provides a helpful ophthalmologic formulary, including conversion tables and calculation of dosage for infants and children. The book should be of practical value to all physicians who treat patients with ocular diseases in the office.

Analgesia and Anesthesia in Obstetrics. By J. P. Greenhill, M.D., Professor of Gynecology, Cook County Graduate School of Medicine, Chicago. Publication number 159, American Lecture Series, monograph in American Lectures in Gynecology and Obstetrics. Edited by E. C. Hamblen, M.D., F.A.C.S., Professor of Endocrinology, Duke University School of Medicine, Durham, North Carolina. Cloth \$2.75. Pp. 85 with 16 illustrations. Charles C. Thomas, Publisher, 301 327 E. Lawrence Ave., Springfield, Ill. Blackwell Scientific Publications Ltd., 49 Broad St., Oxford, England. Ryerson Press, 299 Queen St. W., Toronto 2B. 1952.

This monograph briefly presents the author's views on the management of analgesia and anesthesia in obstetrics. The subject is discussed more from the viewpoint of an obstetrician than from that of an anesthesiologist. The book is divided into 11 chapters containing abbreviated descriptions of techniques, with the notable omission of continuous spinal anesthesia.

The book appears too hastily compiled. The author divides the presentation of material concerning subarachnoid block, and his opinions regarding this procedure, as well as the advisability of the use of pituitary extract, are not in agreement on different pages. The discussion of thiopental (Pentothal) sodium is not up-to-date with regard to its pharmacological action and the need for additional oxygen or nitrous oxide-oxygen analgesia to prevent anoxia. Other safeguards are omitted. The suggested margin of 10% oxygen with nitrous oxide is inadequate. The author's opinion on the use of infiltration anesthesia for dilatation and curettage in the presence of infection is not universally accepted. Some clinicians have found this method of anesthesia inadequate for permanent repair of childbirth lacerations, particularly when rectocele is a complication.

This book, however, will be of interest to general practitioners, obstetricians, gynecologists, and anesthesiologists. A short bibliography and an adequate index are included. The illustrations, quality of printing, and general format are excellent.

Ciba Foundation Colloquia on Endocrinology. General editor for Ciba Foundation, G. E. W. Wolstenholme, O.B.E., M.A., M.B. Assisted by Margaret P. Cameron, M.A., A.B.L.S. Volume I: Steroid Hormones and Tumour Growth and Steroid Hormones and Enzymes. Volume II: Steroid Metabolism and Estimation. Volume III: Hormones, Psychology and Behaviour and Steroid Hormone Administration. Volume IV: Anterior Pituitary Secretion and Hormonal Influences in Water Metabolism. Cloth \$6. \$6.75. \$6.75. \$7.50. Pp. 315 with 48 illustrations. 429 with 96 illustrations. 380 with 78 illustrations. 591 with 139 illustrations. Blackiston Company (division of Doubleday & Company, Inc.), 575 Madison Ave., New York 22. 1952.

The Ciba Foundation in 1949 established an international center in London where research workers are encouraged to meet informally and exchange ideas and information. The foundation has sponsored several international symposiums at which outstanding workers from throughout the world have gathered. The proceedings of nine of these meetings, which have dealt primarily with the steroid hormones, have been collected in these four volumes. In addition to the formal addresses by the participants, the informal discussions of the papers are included. As a result of the informality and intimacy of the meetings, the discussions often include much previously unpublished as well as published work. The topics covered are too numerous to be listed here, but in every case the material is the most recent available. Unlike many symposia, these are presented in a format comparable to the high level of the presentations. They are illustrated with excellently reproduced photomicrographs and line drawings. Ample references are appended to each article, and each volume is separately indexed. The Ciba Foundation is to be commended for its support of these colloquia, which will serve research workers and others interested in steroid hormones. These volumes may be commended without reservation, not only to workers in endocrinology but also to internists desiring a survey of the current research in this field.

Dermatology: Essentials of Diagnosis and Treatment By Marion B Sulzberger M.D. Professor and Chairman Department of Dermatology and Syphilology New York University Post-Graduate Medical School New York, and Jack Wolf M.D. Associate Professor of Clinical Dermatology and Syphilology New York University Post Graduate Medical School Fourth edition Cloth. \$10 Pp 592 with 65 illustrations. Year Book Publishers Inc 200 E. Illinois St. Chicago 11 1952.

This volume, published through three editions under the title 'Dermatologic Therapy in General Practice,' has been revised to include recent advances in therapy and has been given a new title to acknowledge the importance of the sections on diagnosis that open each chapter. It presents lucidly and authoritatively the practical details of diagnosis and treatment of the commoner dermatoses and of syphilis. The authors have written especially for the student and general practitioner, but the postgraduate student of dermatology will find the book helpful. Basic principles of dermatological history taking, examination, and treatment are outlined before specific dermatoses are considered in detail. The rationale of various types of topical therapy is explained clearly in the chapter on principles of topical medication. Throughout the book, the details of treatment are so explicit and so well illustrated that even the beginner in dermatology should have no difficulty in applying them. In each chapter the authors attempt to give perspective and counsel, and the whole subject is presented conservatively. The book is attractively printed and bound and is adequately indexed. It is one of the most practical books in its field.

Handbook of Orthopaedic Surgery By Alfred Rives Shands Jr. B.A. M.D. Medical Director of Alfred I. duPont Institute of Nemours Foundation Wilmington Delaware. In collaboration with Richard Beverly Raney B.A. M.D. Professor of Surgery in Orthopaedic Surgery University of North Carolina, Chapel Hill North Carolina. Fourth edition. Cloth \$8 Pp 644 with 191 illustrations by Jack Bonacker Wilson and others. C.V. Mosby Company 3207 Washington Blvd. St. Louis 3 1952.

The author is an outstanding specialist and has made many contributions to orthopedic surgery. He writes clearly and is an accurate observer. In this edition he has added 10 short sections to the text. The book contains many clear instructive line drawings. Some roentgenograms have been retained, other illustrations have been redrawn.

In a few places, the book is not up-to-date. This may be attributed to the fact that some current methods are controversial. In the treatment of tuberculosis of bones and joints no mention is made of the nicotinamides. Under the local treatment of arthritic joints there is no mention of the use of hydrocortisone (compound F). The author also fails to mention the use of probenecid (Benemid) in the treatment of gout. No mention is made of phenylbutazone (Butazolidin) in the treatment of arthritis and allied conditions. Injuries of the lumbar intervertebral disks are allotted only two pages, little more than disorders of the coccyx are allotted. In figure 23 it is evident that the artist did not understand the point in question. In general however, this is an excellent book for its purpose and reflects a conservative point of view.

The 1952 Year Book of Drug Therapy (August, 1951 August, 1952) Edited by Harry Beckman M.D. Director Departments of Pharmacology Marquette University Schools of Medicine and Dentistry Milwaukee Cloth \$5.50 Pp 606 with 114 illustrations. Year Book Publishers Inc. 200 E. Illinois St. Chicago 11 1952.

Rapid advances in medicine make it necessary to have frequent abstracts of important papers available for those who are not actively working in a particular field. For that purpose in the field of therapeutics this book is unusually good. The volume covers many subjects, and of course, emphasizes the drugs that are now being developed and investigated. Adreno corticotropic hormone, cortisone, and hydrocortisone (compound F) are accorded a good deal of attention. There is a good discussion of fungus infections and their response to the antibiotics. The therapeutic agents used in neoplastic diseases are well covered. In the space of a small volume, abstracts on many topics of current interest and references to the original articles are included. This volume will prove very helpful and time saving to practitioners and also to teachers of medical students.

Dermatology: A Textbook for Nurses By Herbert Rattner M.D. Professor and Chairman Department of Dermatology Northwestern University Medical School Chicago Cloth \$4.25 Pp 270 with 100 illustrations. W.B. Saunders Company 218 W. Washington Sq. Philadelphia 5 7 Grape St. Shaftesbury Ave. London W.C.2 1953.

This small book is based on a series of lectures that comprise the course in dermatology for student nurses at Cook County Hospital, Chicago. The author has attempted "to acquaint the nurse with the fact that the skin is a structure with its own diseases, regulated by its own laws, to help her to recognize that some cutaneous diseases are contagious but that the vastly greater number are not, to stimulate her to appreciate the special nursing problems created by diseases of the skin, and to afford her an intelligent appreciation of the many unsolved problems of dermatology." The first lectures deal with the structure, function, and care of the normal skin, the general types of skin lesions, and the basic principles of topical treatment. Subsequent chapters present the symptoms and findings of the commoner dermatoses and syphilis, with brief remarks on treatment. The presentation is simple and concise and is supplemented with a number of clinical photographs. The book is attractively printed and bound and has an adequate index. It should prove helpful to nurses, teachers, and even to medical students as an introduction or supplement to the more encyclopedic texts.

The Metabolism of Protein Constituents in the Mammalian Body By S. J. Bach Cloth \$9.25 Pp 272. Oxford University Press 114 Fifth Ave. New York 11. Amen House Warwick Sq. London, E.C.4 1952.

This monograph fulfills a definite need, for the last comparable work on the biochemistry of amino acids was published in 1929. Although the scope of the book is limited to 10 constituents of proteins, to metabolism proper, and to mammals, almost 1,200 references are cited, most of them not more than 15 years old and many published in 1951 and 1952. In addition, Dr. Bach is thoroughly familiar with the field and has the gift of being able to make it interesting to others. The author and subject indexes are comprehensive, and the printing and binding are excellent. This monograph is recommended for graduate students, research workers, and teachers of biochemistry and physiology.

Refresher Course for General Practitioners. Specially commissioned articles from *British Medical Journal* First collection October 1949 to December 1950. Cloth 25/- Pp 486 with illustrations. British Medical Association 19 Tavistock Sq. London W.C.1 1952.

This book consists of 55 articles by well-known British clinicians on medical problems commonly encountered by the general practitioner. Some of the topics discussed are acute throat, management of the premature baby, the influenzal diseases, causes and treatment of eczema, cardiac neuroses, acute abdominal disease, infant feeding, and the management of diabetes mellitus. The articles were originally published two years ago in the *British Medical Journal* and were published in book form to provide a review of established practices and to present newer advances in a simple, straightforward fashion. The book is well printed and generously illustrated. Practicing physicians and students alike should enjoy its contents.

Diseases of the Esophagus. By Philip Thorek, M.D. F.A.C.S. F.I.C.S. Associate Clinical Professor of Surgery (formerly assigned to Gross and Topographical Anatomy) University of Illinois College of Medicine Chicago Cloth \$10 Pp 140 with 102 illustrations drawings by Carl T. Linden Assistant Professor of Medical Illustration University of Illinois College of Medicine J.B. Lippincott Company 227 231 S. Sixth St. Philadelphia 5 Aldine House 10-13 Bedford St. London W.C.2 2083 Guy St. Montreal 1952.

This short book should prove to be of interest to physicians interested in diseases of the esophagus. Normal anatomy and physiology are discussed, and methods of examination and diagnosis are outlined. Diagnosis and treatment of diseases affecting the esophagus are reviewed, and a brief discussion of tumors is included. There are many references, but the details of newer studies are not given. The book's greatest value lies in its excellent illustrations and the discussions of operative technique.

USE OF TOBACCO AND ALCOHOL BY ULCER PATIENTS

TO THE EDITOR—A patient, aged 63, had a gastrectomy because of a chronic duodenal ulcer and a posterior perforation. The gastroenterologist recommended a bland diet for four months, then permitted a full diet with moderate smoking and occasional drinking of alcoholic beverages. The surgeon absolutely forbade smoking and was noncommittal about the need for a diet. This puts me in the middle. What is the recommended postgastrectomy diet regimen? What is the consensus on smoking or occasional use of alcoholic beverages?

M D New York

ANSWER—Patients with duodenal ulcer almost invariably secrete from 3 to 30 times as much gastric juice in the empty stomach during fasting as is found in normal persons. They also secrete several times as much gastric juice in response to the stimulus of food taking. There is much reason to believe that this excessive secretion of gastric juice is the chief factor in producing the duodenal ulcer and in maintaining its chronicity. The value of subtotal gastric resection in the treatment of duodenal ulcer depends not only on the fact that the ulcer is removed but also on the fact that the secretion of gastric juice is greatly decreased. This decrease is accomplished through removal of the antrum and also a large part of the body and fundus of the stomach containing the acid secreting gastric glands. If the secretion of gastric juice has not been reduced below the amount found in normal persons, gastrojejunal ulceration is apt to develop. Valuable information concerning this point can be secured by measuring the nocturnal secretion produced by the gastric remnant. In this case, the indwelling gastric tube must be accurately placed, under fluoroscopic control. It should be emphasized that the nervous or vagus mechanism of gastric secretion is not eliminated by the operation, and the gastric remnant is still bombarded by secretory impulses arising as a result of nervous tension and emotional conflict. Since both smoking and the consumption of alcohol are potent stimuli for gastric secretion, their use undoubtedly increases the hazard of gastrojejunal ulcer formation. If the hypersecretion of gastric juice has not been entirely eliminated by the operation, additional unnecessary stimulation should certainly be avoided.

ARACHNOIDITIS

TO THE EDITOR—I am treating a 59-year-old woman for arachnoiditis, which apparently is diffuse in the lower vertebral segments and which has been proved by laminectomy and biopsy. She has had nerve root pain over the perineum and in the legs for three years, and for six months there has been a relative atony of the urinary bladder and the bowel. I am interested in opinions on treatment with roentgen rays and with cortisone or related drugs.

Harold E Eisele, M D Los Angeles

ANSWER—There is no evidence that x-ray therapy would be of any value in the treatment of an arachnoiditis in the lower part of the spinal canal. While no reports of treatment of this condition with cortisone are available, there seems to be no reason to believe that it would prove efficacious, on the other hand, there is no reason why it should not be tried. If the pain in this case is sufficiently severe to warrant it, either a cordotomy or a posterior root section may be considered. Unfortunately, neither surgical procedure could be expected to result in any improvement in the condition of the bowel or bladder, in fact, either one might make these functions worse.

The answers here published have been prepared by competent authorities. They do not however represent the opinions of any official bodies unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

PARESTHESIA FOLLOWING FRACTURE OF CERVICAL SPINE

TO THE EDITOR—A 69-year-old man fell downstairs 15 months ago sustaining a fracture dislocation at the fifth and sixth cervical vertebrae. After treatment consisting of use of Crutchfield tongs, a neck brace active and passive exercise, diathermy, and galvanic muscular stimulation much atrophy and spasticity of the upper extremities and to a lesser degree of the lower extremities have resulted. The patient walks with a drag of the right foot and spasticity in both legs. He has limited use of the arms with only about 30 degrees flexion function remaining. For six months his chief complaint has been paresthesias of the arms and legs, which he says make them feel as though they were in boiling water. Please advise some treatment for this burning sensation. A course of mephenesin (Tolserol) and vitamin B₁₂ has been of no value. Circulation in the feet is good.

Gerard Del Grippo, M.D., Lock Haven, Pa.

ANSWER—There is no treatment known to be of value for paresthesias in the extremities following fracture dislocation of the lower cervical spine. Medication probably would prove entirely worthless, and it is unlikely that any form of surgical treatment would be beneficial. Naturally, one would think of the possibility of a cordotomy in a patient complaining of pain in the extremities, however, this patient's discomfort can hardly be described as pain, and it seems unlikely that a cordotomy would relieve it. Furthermore, a cordotomy could not be performed sufficiently high to give relief of pain in the upper extremities, even if it proved effective for the discomfort in the lower extremities.

WHISTLING NOISE OVER TEMPORAL AREA

TO THE EDITOR—A girl, aged 3, has a whistling noise over the left temporal area and occasionally on the right side, also. This is synchronous with the pulse rate and is more audible at some times than at others. There is no thrill palpable, the sound is not heard over the vessels of the neck on either side and there is no heart murmur. She was not an erythroblastotic baby and had a normal delivery with no difficulty or even use of instruments. She has been well, except for a mild case of poliomyelitis at 1 year of age and pneumonia four months ago. This noise was heard by the mother when the child was 10 months old. She occasionally complains of headache and will lie down for 5 to 10 minutes and then will be playing about as usual. Would this be due to an arteriovenous aneurysm, and, if so, where would it be located? Would the headaches be caused by this? Is there any surgical treatment that might be of value in this condition?

G H Purves, M D, Hendricks, Minn.

ANSWER—In all probability, the bruit synchronous with the heart beat that is heard in the left temporal region in this patient is the result of an arteriovenous fistula. This is probably a congenital anomaly of the vascular system, most likely located on the left side of the head and near the point at which the bruit is heard most loudly. The exact location of the abnormality could be determined only by a cerebral angiogram. The bruit alone would hardly be sufficient reason to make an angiogram or to consider any surgical treatment of this lesion. If at a later date neurological abnormalities develop that are sufficiently severe to warrant such treatment, an angiogram should first be made and then surgical intervention considered. There are so many causes for headache that it would be impossible to state from the evidence given whether the headaches are the result of this abnormality. Many such patients can be treated satisfactorily by excision. What difficulties an operation of that type would entail and what the risks would be would depend on the nature and location of the lesion. In any event, it would not be wise to consider such treatment at this time.

INFLUENZA VACCINE

TO THE EDITOR—*What is the present status of influenza prevention by means of immunization? What is the likelihood of either inducing an allergy to egg protein or precipitating a reaction in persons allergic to egg protein by the use of such agents prepared from chick embryos?*

M D, Kentucky

ANSWER—In controlled studies, the available influenza virus vaccines have been found to prevent infections due to the strains of virus contained in the vaccines. The present vaccine composition includes strains that have been occurring in recent years. The degree of protection afforded appears to be about 75%. The use of vaccine in population groups and in family groups rather than in isolated persons would afford a greater degree of protection, because of the reduced likelihood of exposure in groups in which the proportion of susceptible persons has been reduced below the critical level necessary for the disease to spread. It now appears that repeated injections of vaccines made from chick embryo material or the extra embryonic fluids of the embryo do not induce clinical allergy to egg or embryo protein, however, in persons known to be sensitive to eggs, severe reactions are likely to occur. It is recommended, therefore, that vaccines prepared from egg material not be given to persons who are known to be egg-sensitive. If the question of egg sensitivity is asked prospective vaccinees and vaccine is not given to persons with known egg allergy, the procedure appears to be entirely safe.

PSORIASIS AND CLIMATE

TO THE EDITOR—*Would it be advisable for a patient with generalized psoriasis to move to an area with a warmer climate from one in the temperate zone, such as San Francisco? Is there a direct correlation between the lessening of severity of psoriatic arthritis and that of skin lesions? If the arthritis is once established would it tend to remain or may it be expected to subside? Is there any specific area in the country in which the incidence is especially low?*

M D, California

ANSWER—Many factors are involved in generalized psoriasis, with or without arthritis. Climate is only one. It would be foolish for the patient to move from San Francisco to a region with a favorable climate, such as southern Arizona, without a six months' trial residency in the latter location. There seems to be no correlation between the lessening of severity of psoriatic lesions and that of arthritic lesions in a given patient. Arthritis, once established, usually remains. There is no specific area in the country in which the incidence is especially low.

REPAIR OF HERNIAS WITH TANTALUM GAUZE

TO THE EDITOR—*I would like information concerning the repair of ventral and inguinal hernias with tantalum gauze. Should the gauze be placed over or under the fascia? What type of suture is preferable? What is the proper after-care? Where in this area may the gauze be purchased?*

Henry C Scholer, M D, Monmouth Ill

ANSWER—In this consultant's experience in 70 cases of postoperative ventral hernia, it has been found advisable to place the tantalum gauze over the fascia and to cover it with a sheet of fascia lata. The addition of fascia lata is especially important in cases in which there is a thinning out of the skin and subcutaneous tissues of the abdominal wall, since tissue reaction is reduced and healing is promoted. When tantalum gauze is placed directly beneath thinned-out skin and subcutaneous tissues, foreign body tissue reaction may be initiated and the gauze may be extruded. It is also essential to prepare a groove or gutter in the margin of the defect in the abdominal wall so that the edges of the tantalum gauze are covered with muscular or fascial structures. The tantalum gauze is sutured in position with no 000 braided tantalum or stainless steel sutures, and the overlying fascia lata is maintained in position with the same type of suture. Concerning aftercare, the following points should be remembered. Gastrointestinal intubation is begun before the operation and continued until peristaltic activity is restored. In general, the principle of early ambula-

tion should be followed, because pulmonary congestion and atelectasis are best avoided by this measure, and coughing and distension, the two most hazardous complications of this operation, are largely eliminated. The special scultetus binder should be applied to the abdomen before ambulation is begun, especially when the defect is large. The tantalum mesh gauze may be purchased from any of the large surgical supply houses or directly from Ethicon Suture Laboratories, New Brunswick, N J.

SENSITIVITY TO COTTONSEED

TO THE EDITOR—*A woman, aged 47 had one attack of asthma that required hospitalization. While there had been no previous similar episodes, for several years she had periodic feelings of extreme fatigue, shortness of breath and a feeling of being too tired to breathe. During the recent episode for which she was hospitalized, skin tests showed sensitivity to cottonseed oil, house dust, ragweed and Alternaria. Her attending physician feels that hyposensitization to cottonseed oil cannot be accomplished and that this sensitivity can be controlled only through rigid dietary procedure. I would appreciate advice on hyposensitization to cotton seed oil.*

M D, Illinois

ANSWER—There are several reasons why hyposensitization to cottonseed oil is not to be advised in this case. 1 A positive skin reaction to cottonseed protein does not mean that the patient is allergic to cottonseed oil. In the vast majority of instances of cottonseed sensitivity, the oil can be tolerated with impunity. Biological investigations of cottonseed oil do not indicate that it has any appreciable cottonseed antigen. 2 A positive reaction to cottonseed means that the patient could have trouble from the ingestion of cottonseed meal (such as were used in health breads) and from the inhalation of dust from cotton linters, such as is found in mattresses and furniture stuffing. 3 One attack of asthma, even when the cause is known and when desensitization is specific and safe, does not justify the extended period of injections ordinarily required in specific therapy. 4 The cottonseed antigen is a potent antigen, and desensitization with it is a truly hazardous procedure. It is seldom indicated. It is suggested that the patient disregard any dietary restrictions aimed at the elimination of cottonseed oil. If asthma recurs frequently, other factors, allergenic and otherwise, should be considered.

ULTRAVIOLET RAYS IN BARBER SHOPS

TO THE EDITOR—*We are trying to change the sanitary regulations governing barber shops in this state. The barber industry insists that ultraviolet light is effective as a germicidal and/or fungicidal agent, and it proposes to answer our insistence that more effective sterilization is needed by installing ultraviolet light units in the shops. Kindly furnish pertinent information that you have.*

C H McCuiston, M D, Austin, Texas

ANSWER—To kill microorganisms, a direct hit by ultraviolet rays of sufficient intensity is required. This is difficult to accomplish when organisms are on the edge of a drinking cup, between the teeth of a comb, at the base of the bristles of a brush, on the overlapping surfaces of scissor blades, in liquid containing suspended matter, or in air laden with dust particles that shield the organisms. To provide adequate sterilization, a germicidal application must effect killing of 100% of the organisms present. Ultraviolet germicidal rays cannot penetrate deeply and may be absorbed by finger marks, saliva, cosmetics, or other contaminations in a drinking cup, comb, brush, or other utensil. The ultraviolet germicidal lamp is, therefore, an uncertain means of sterilizing solid objects, even if irradiation of the whole surface is possible. Also, if ultraviolet germicidal lamps are used to irradiate shelves and containers, in which freshly sterilized and clean utensils or barber tools are stored, then adequate protection is required to prevent ultraviolet ray burns of the hands and arms of the attendants who manipulate these utensils.

REFERENCE

Acceptance of Ultraviolet Lamps for Disinfecting Purposes. Report of Council on Physical Medicine, J A M A 137:1600 (Aug. 28) 1948.

EXTRA MILK FOR WELDERS

TO THE EDITOR—In an industrial firm, the question of provision of milk to welders is frequently raised. Men engaged in this occupation regularly follow a practice of consuming extra quantities of milk, and it is their firm belief that this counteracts the toxicity of the fumes to which they are exposed. Is there any scientific evidence to support this belief?

W. Burton Ayre, M.D., Montreal, Quebec

ANSWER—An extra intake of milk is commendable, but the benefit is chiefly related to vitamin levels. The action of nitrogen oxides on the respiratory tract initially and primarily is local. Some welding work is attended by unusual thirst that is not easily satisfied. Some welders and galvanizers believe that milk best meets this need. Certainly milk consumption may not be relied on as constituting adequate protection against harmful concentration of either welding gases or metal fumes.

TINNITUS

TO THE EDITOR—A woman, aged 62 who has had hypertension (systolic pressure 270 to 220 mm Hg diastolic pressure 120 to 100 mm Hg) for 15 years now complains of persistent ringing in her ears. Results of physical examination are essentially normal, and she has no apparent ear involvement. What therapy can you suggest to alleviate her condition?

Maurice M. Schrier, M.D., Brooklyn

ANSWER—It is questionable whether the tinnitus in this patient is necessarily related to the hypertension. Tinnitus occurs just as frequently independently of vascular disorders. The treatment of tinnitus aurium is unsatisfactory; there is no specific remedy. Raising the hemoglobin to an optimum level may help, but there is no assurance of this.

LABORATORY TESTS IN INCOMPLETE ABORTION

TO THE EDITOR—In the case of an incomplete abortion, what is the significance or value of an Aschheim Zondek, a Friedman, or a frog test? For how long will these tests give positive results? If placental tissue remains attached to endometrium, do these tests give positive results?

Jerome C. Pierce, M.D., Chicago

ANSWER—A negative result in an Aschheim Zondek, a Friedman, or a frog test in the presence of an incomplete abortion indicates that the placental tissue is not producing gonadotropic hormones, but it does not indicate an absence of placental tissue. If placental tissue remains attached to the endometrium and produces gonadotropic hormones, the test continues to give a positive result. Usually, results of a biological test become negative about eight days after delivery or removal of placental tissue.

ROENTGENOGRAPHIC STUDIES DURING PREGNANCY

TO THE EDITOR—I would like to inject a note of sober realism into the discussion on Roentgenographic Studies During Pregnancy in *THE JOURNAL* March 21, 1953, page 1054. It is true that the fetus is more radiosensitive during the first trimester of pregnancy than at a later stage of development, but it is also true that it is most susceptible to radiation during the first two weeks after its conception. Moreover, in roentgen diagnostic procedures that are employed far more frequently such as studies of the gastrointestinal tract, a considerably greater amount (4 to 20 times as much) of roentgen rays will be delivered to the region of the uterus than in roentgen pelvimetry. According to conservative estimates more than a million barium enema studies and an even greater number of gastrointestinal x-ray studies are performed in this country each year. Assuming that half this number are done on women and realizing that radiologists seldom confine their examinations to the first 10 days following a normal menstruation, which they should do if x-ray pelvimetry is harmful, some reevaluation of this problem appears in order. The number of women who have undergone x-ray studies within the first two weeks of their as yet

unsuspected pregnancy over the last 20 years must be staggering. If any ill effect on a fetus has resulted from this practice, it should be known by now. If new and definite evidence of such ill effects has accumulated recently, it should be brought to the attention of the medical profession. Until then I believe the best that obstetric radiology has to offer to the referring physician is a simple pelvimetric examination in the earlier part of the patient's first pregnancy (dose to fetus 0.5 to 2 r), visualization of the fetus after the 24th week for the detection of obvious abnormalities and for fetal age determination as part of routine prenatal care and a more elaborate cephalopelvimetric examination near term, whenever an uncertainty about cephalopelvic disproportion remains.

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DARK BROWN MOLE

TO THE EDITOR—In *Queries and Minor Notes* in *THE JOURNAL* March 21, 1953, page 1051, is the answer to a query on the handling of a nevus "irregular, dark brown, 1½ cm in diameter, intracutaneous, not raised, and not ulcerated." The inquirer is advised that "the area should be widely excised down to the fascia." I believe that most dermatologists and many pathologists will consider this advice unnecessarily radical. The fact that such a lesion on the posteromedial aspect of the lower leg has slightly increased in size in the past year after being present for many years certainly does not excite enough suspicion of malignancy to justify such radical treatment. If every such lesion, regardless of location, were excised widely and down to the fascia, we would indeed be a deeply scarred race. I believe that most pathologists will agree that local excision (as suggested by the writer of the query) for biopsy would be adequate treatment. If biopsy indicates that the lesion is a junction nevus showing activity or a malignant lentigo, wider and deeper excision can be carried out after the biopsy, without danger of metastasis being increased by the short delay.

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EVANESCENT MASS IN SUPRACLAVICULAR FOSSA

TO THE EDITOR—In *THE JOURNAL* Feb. 21, 1953, page 696 in the query on 'Evanescent Mass in Suprclavicular Fossa' Dr. Ramon A. Barrera describes a soft swelling of changeable size above the left clavicle. This sort of swelling is not unlike the so-called hydrocele of the neck, a cystic swelling somewhat similar to the cystic hygroma of infancy but occurring in adults in this particular location. These are multilocular cysts with thin endothelial walls, lying deep in the neck and extending down into the thorax and even into the axilla. They have a tendency to vary in size. The diagnosis can be established by aspiration. Normally the cysts contain a clear, straw-colored fluid that coagulates on standing. Hemorrhage into them, however, is common, and the needle may withdraw what appears to be pure blood. A blood cell count will reveal that it is not similar to the peripheral blood.

London Seed, M.D.

55 E. Washington St., Chicago 2

INFECTION OF SEMINAL VESICLE

TO THE EDITOR—With regard to Dr. Benjamin Berger's inquiry in *THE JOURNAL*, Feb. 7, 1953, page 533, about the treatment of hematospermia, may I add that vasotomy with injections of an appropriate antibiotic, as determined by culture and sensitivity tests, or the alternate instillation of Collargol (a colloidal silver preparation) may be helpful. Another method that has been found successful in hematospermia of unknown origin is the use of estrogenic hormones described by Huggins and McDonald (*J. Clin. Endocrinol.* 5:226, 1945).

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RED BLOOD CELLS AS SOURCE OF PROTEIN FOR PARENTERAL USE

Major N O Calloway

and

Col F H Mowrey, (MC), U S Army

The most concentrated solutions of protein that normally can be given intravenously are 4 to 5% solutions of proteins or amino acids. It is necessary to give the patient tremendous quantities of fluid to provide adequate quantities of protein. Other substances in the form of solutes, such as sodium chloride, are administered simultaneously, since they are part of the manufactured product utilized as a source of protein or amino acids for intravenous administration. We have found no references in the literature to any type of substance that could be given intravenously that would contain as much protein as a similar volume of packed red cells. Packed red cells contain 30% hemoglobin, this means that 300 cc of packed red cells will contain 90 gm of protein as hemoglobin, whereas 1,600 cc of the ordinary solutions of amino acids or proteins, given over a long period, are required to furnish the same amount of protein.

If it were feasible to use the red cell as a source of protein, it would be possible to give large quantities of protein intravenously from small volumes of packed red cells that have been freed of solutes. This frequently is desirable in debilitated states, such as cirrhosis, nephrosis, or even cardiac disorders, in which protein is needed. It appeared to us to be entirely possible to utilize the red cell as a source of such protein without at the same time overburdening the patient with sodium chloride or fluids that may add to the severity of his fluid imbalance. If red cells could be used for this purpose not only would a source of concentrated protein become available but at the same time a use would be found for the tremendous quantity of red cells that are accumulated in the collection of blood and plasma by the American Red Cross, the armed forces, and private institutions. It has been estimated that 1.5 billion cc of red cells

are discarded each year. This number of red cells contains the staggering quantity of 500 million gm of hemoglobin. This amount of hemoglobin, if it can be used as a source of protein for intravenous administration, equals the tremendous amount of ready synthesized human protein.¹ This is sufficient protein to raise the serum protein level from 5 to 7 gm per 100 cc in 333,000 patients, allowing 1,500 gm per patient. It has been shown² that globin separated from the heme part of the molecule is an excellent source of protein. It further has been shown that this material will maintain nitrogen balance in human beings, however, 2,500 cc were required to furnish 79 gm of protein over a period of 10 days. The rate of administration is extremely slow, the volume of fluid is high and the amount of protein administered is small.

Many suggestions may be found for the use of packed or resuspended red cells in various anemias.³ Statements may be found in the literature to the effect that the main value of a red cell transfusion is to increase the erythrocyte count.^{3b} While this is probably true, such expressions have delayed any study of the red cell as a source of protein. Suggestions have been made in the literature that red cells (even old red cells) be used in treatment of debilitated states and that they be used directly or in diluted form. It has been pointed out⁴ that red cell administration may be used in place of transfusions. In most of these studies red cells were used for replacement of hemoglobin and to supply the patient with oxygen transporting ability only. On the other hand, it has been pointed⁵ out that type "O" cells may be used and that cells and serum need not always be matched type for type. It also has been suggested⁶ that reactions occur less frequently with packed red cells than with whole blood. This

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2. Strumia M M, Blake A D, Reider H C, and Chornock F W. The Use of a "Modified Globin" from Human Erythrocytes in Hypoproteinemias. *Am J M Sc* 211:51 (Jan.) 1946.

3. (a) Janeway C A. The Clinical Use of Blood Derivatives. *J A M A* 138:859 (Nov 20) 1948. (b) Alt H L. Red Cell Transfusions in the Treatment of Anemia. Preliminary Report. *J A M A* 122:417 (June 12) 1943.

4. Cooksey W B and Horwitz W H. The Use of Salvaged Red Cells. *J A M A* 124:961 (April 1) 1944.

5. Janeway^{3a} Cooksey and Horwitz.⁴

6. Blum L L. Red Cell Transfusions. *J A M A* 122:892 (July 24) 1943.

communication is a preliminary report on our observations on the use of red cells as a source of protein for parenteral use

METHOD AND MATERIALS

We have studied eight patients in an effort to obtain information on the possible use of red cells as a source of protein, edematous patients with cirrhotic livers,

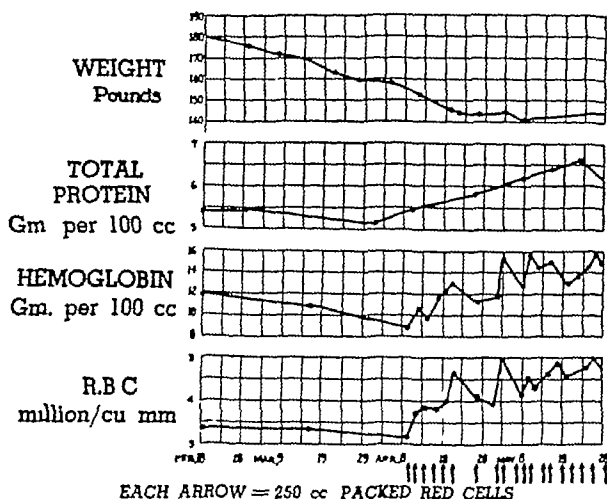


Fig 1 (case 1)—Course of a patient with hepatic cirrhosis before and during administration of packed red blood cells

nephrotic patients, and one patient in heart failure with the hepatomegaly of so-called cardiac cirrhosis. All patients were kept on the ward for varying periods to ascertain the clinical trend prior to the beginning of the administration of red cells. All patients were placed on diets that contained fixed 24 hour intakes of protein, carbohydrates, and fat and a sodium intake of about 250 mg. In all cases, daily weight determinations and periodic red blood cell counts and hemoglobin and serum protein level determinations were done.

The red cells used in this study were obtained from blood by simply decanting the plasma or as cells resuspended in corn syrup from the Red Cross bank at Lansing, Mich., from which we obtained much of our blood. In no case did a transfusion reaction or any difficulty with the use of the blood occur. Attempts to resuspend cells after washing in 5% dextrose solution led to disappointing results. The cells underwent hemolysis, they stuck together in large aggregates, their color changed, and they became generally useless. Most of the cells used in this study were old cells obtained from blood collected from two to three weeks prior to the time the cells were used for this study. The recipient type of cells were used whenever possible, and the usual cross matching precautions were followed. In many cases, however, it was not possible to obtain the recipient type of cells, and "O" cells were used. All cells were carefully cross-matched for all major and minor agglutinins. No difficulty was experienced in administering the "sludged" red cells, that is, those from which the plasma had been carefully drained after the blood had been allowed to settle. We found that these cells, although appearing thick and viscous, would flow through a 20 gage needle without difficulty. An ordinary transfusion set was used, with a filter, tubing, and conventional needle, for the administration of the cells. No special apparatus or un-

usual precautions were utilized in the handling of the blood, except those normally used in handling blood from blood banks and for transfusions. Liver biopsies were done in all cases of cirrhosis. The response of all patients followed the same general course. Preliminary data on four patients are presented.

RESULTS WITH REPORT OF CASES

Cirrhosis of the Liver—It has been commonly observed that patients with liver cirrhosis, when hypoproteinemic, are also anemic, hence, it is odd that red cells have not previously been used in their treatment. There is little question that the red cells would benefit such patients. For this reason, our early studies were concerned with the use of the red cells in cirrhosis of the liver.

CASE 1 (fig 1)—A man with long-standing cirrhosis of the liver was admitted to the hospital. His weight was 233 lb (105.7 kg), and he had ascites as well as 4+ ankle edema. His liver and spleen were enlarged. He was placed upon a daily diet, constant in composition, consisting of 235 mg. of sodium, 111 gm of protein, 261 gm of carbohydrates, and 89 gm of fat. This represented a nitrogen intake of 17.7 gm per day and provided about 2,300 calories. This is of the order of basal plus 50% of the calories required for this patient's nutrition, and, while not a "high" caloric diet, it was all the food he would take. Furthermore, we felt that such a diet would not mask protein synthesis from the red cells by a possible rapid synthesis of protein from the oral nitrogen intake. On this regimen, which lasted 50 days, from early in February until April 9, the patient steadily lost weight, as shown in figure 1, however, his total serum protein level not only did not increase but actually declined. The hemoglobin level dropped steadily during this period, and the red blood cell count also decreased slightly. On April 9, blood in the form of packed red cells was administered. The patient received 19 transfusions of about 250 cc of packed red cells each during the next 50 days. Immediately on administration of the first red cells, the patient's hemoglobin level and red blood cell count increased, as would be expected, although the increase was irregular. At this time also his serum protein level began to increase steadily, until it reached a value of almost 7 gm per 100 cc. During the stated period, no sudden change occurred in the rate at which he lost weight. This weight loss was due largely to diuresis, as far as we could tell, however, the patient was losing tissue substance, since he was in negative nitrogen balance (fig 2). Thus, by April 18 or 19, his weight began to level off, although he continued to lose fluid. This we

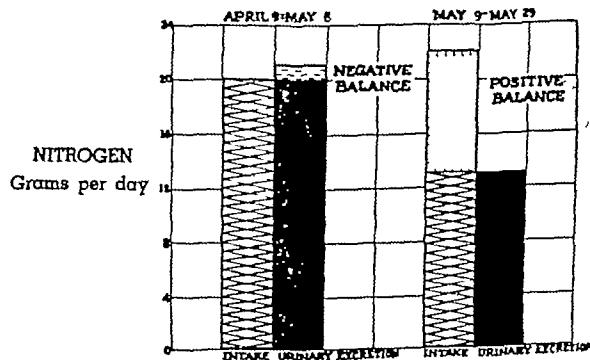


Fig 2 (case 1)—Nitrogen balance in patient with hepatic cirrhosis during administration of packed red blood cells. (Other data for this patient are shown in figure 1)

interpreted to be the result of protein synthesis. From a study of figure 2, it may be seen that the patient was in a markedly positive nitrogen balance during the last part of the study period, beginning some time in late April. He continued to lose fluid from his tissues. By June 1, ascites had entirely disappeared. The patient's general clinical condition had improved tremendously. His appetite was better, his color was improved, he had much more energy, and he was more interested in being

active, although he was confined to a minimum of activity. Hepatic function studies showed constant though slow improvement.

CASE 2 (fig 3)—This patient also had a cirrhotic liver. We did not include the red blood cell count data in figure 3 because changes in these values closely paralleled changes in the hemoglobin level in the case of other patients. This patient also had a long, fairly constant course, until red cell administration was begun. He received 22 red blood cell transfusions over 50 days.

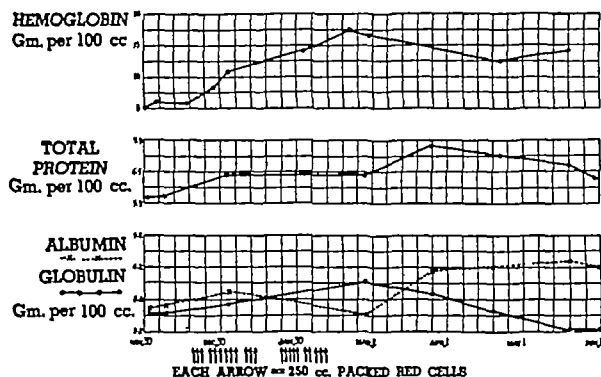


Fig 3 (case 2)—Course of a patient with hepatic cirrhosis before during and after administration of packed red cells.

Figure 3 shows clearly that as soon as the red cells were administered, a rapid increase in the hemoglobin level from 5.5 to 16.5 gm per 100 cc occurred. During this period the serum total protein level rose from 5.7 to 7.4 gm per 100 cc and then slightly declined. The albumin and globulin levels, which had been low, first underwent a slight increase. This was followed by a reversal, and by the time administration of the red blood cells was finished, there had been an increase in the globulin level to a point at which it exceeded the albumin level. During the period, about one month, immediately following the transfusions, an extremely rapid change in the albumin globulin ratio occurred. Two weeks after the administration of the blood, the albumin level began to rise, to a high of 4.5 gm per 100 cc, and the globulin level began to fall, to a low of 2.2 gm per 100 cc. The total serum protein level showed, however, a net loss, so that the actual level at that time was about 6.7 gm per 100 cc. During this period, the clinical course of the patient was one of continuing improvement. His bilirubin level decreased, his thymol turbidity decreased, and his general clinical state improved tremendously. There seems little doubt that the administration of the red cells contributed directly to the formation of protein and its correct redistribution. It is interesting to note that, immediately after the use of red cells was begun, the albumin globulin ratio was reversed but was corrected after use of red cells was stopped.

Heart Failure and Cirrhosis—The effect of the administration of packed red cells as protein in heart failure associated with cirrhosis is illustrated by the following case.

CASE 3 (fig 4)—A patient in severe heart failure with old, inactive, rheumatic mitral valvulitis was admitted to the hospital. She had mitral stenosis and insufficiency, a large indurated liver, and pronounced hypoproteinemia and anemia. In addition, she was four months pregnant. The cirrhosis was presumed to have a dietary and cardiac basis, since the patient's history of food ingestion was very poor. Besides the usual clinical control, consisting of bedrest, digitalization, low sodium diet, and careful measurement of the fluid balance, the patient received 17 transfusions of packed red cells over a period of 42 days. She had been receiving digitalis prior to entering the hospital, so we feel that digitalization contributed little toward clinical improvement. With the patient at bedrest, diuresis began shortly after administration of the first packed red cells. Her general condition steadily improved. It will be noted in figure 4 that the hemoglobin level and the red blood cell count responded directly to the transfusions, as would be expected. It should also

be noted that the serum total protein level steadily increased, although there were wide fluctuations in the value. These were presumed to be due to fluid shifts resulting from the heart failure, cirrhosis, and pregnancy. The patient, who was small, weighing about 104 lb (47.2 kg) (dry weight), received 4,250 cc of red blood cells. About five weeks after admission, she gave birth to a stillborn infant of about 5½ months gestation. She went through this episode without untoward complication, her cardiac status remaining constant during the delivery. The hemoglobin level and the red blood cell count continued to increase. The serum protein level during this period leveled off, but, shortly after the stillbirth, it began to increase. The total gain in serum protein during the time the patient received blood was 0.8 gm (from 5.2 to about 6 gm) per 100 cc. The liver decreased in size, although it was still enlarged somewhat. The patient was discharged from the hospital on May 1 greatly improved. Throughout our study there was no change in the patient's blood type, her blood grouping, or the agglutination phenomena, including the Rh factor. These studies were carefully made while she was in the hospital and periodically after she left.

Nephrotic Syndrome of Glomerulonephritis—The effect of the administration of packed red cells on the protein deficiency of the nephrotic syndrome of glomerulonephritis is illustrated by the following case.

CASE 4 (fig 5)—A patient in the early nephrotic phase of glomerulonephritis was admitted to the hospital. He had slight generalized edema as well as the classical urinary condition that would be expected. For two weeks, beginning April 6, after this, the total protein level of the patient decreased, and the serum albumin and globulin levels fluctuated some but were both low. In this patient, however, the hemoglobin level and the red blood cell count were not nearly so low as they were in the patients with hepatic cirrhosis. In other nephrotic patients studied, the same phenomena as well as the same type of response were observed as reported in this case.

In figure 5, it will be noted that when red blood cell administration was started a plethora immediately began to develop. During the administration of only five units, 250 cc each, of packed red cells, the patient's hemoglobin level went up to almost 19 gm per 100 cc. The red blood cell count rose well above 6 million. At the same time, there was a drop in the serum albumin level and a rise in the globulin level, resulting in a reversal of the serum protein ratio. After the administration of 1,250 cc of red cells, there was a rise in the total serum

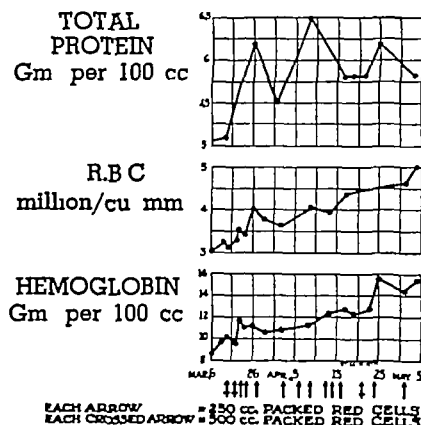


Fig 4 (case 3)—Results of administration of packed red blood cells to a patient with mitral stenosis and insufficiency, chronic right heart failure, hypoproteinemia, normocytic anemia, hepatomegaly and probably hepatic cirrhosis with a dietary and cardiac basis.

protein level. The albumin level began to rise, and the globulin level dropped slightly, and, three weeks after red cell therapy had ended, the patient had about 5 gm of albumin and 2.5 gm of globulin per 100 cc. At the same time, there was a sharp fall in the hemoglobin level and red blood cell count. Similar phenomena were seen in two other patients with the nephrotic syndrome who were studied. In other patients there was such a large urinary loss of albumin, which increased after the red

cells were administered, that there was no net gain in the albumin in the blood. In these cases, however, all the evidence indicates that actually the patients were synthesizing albumin at an increased rate. In one patient the urinary loss rose from 8 to 50 gm per day following red cell transfusions. The patient described here readily lost his edema, his sense of well being returned, his color improved, and he finally left the hospital in good condition.

STUDY OF NITROGEN BALANCE

Figure 2 shows the results of nitrogen balance studies performed on the patient in case 1. It will be noted that during the 30 day period from April 9 to May 8 the patient was receiving nitrogen from his food and from administered red blood cells as indicated in figure 1, and that the intake of nitrogen was lower than the urinary excretion of nitrogen. No attempt was made to determine the fecal nitrogen level. During this period, there was a negative nitrogen balance, and the patient was losing a net amount of protein equivalent to 1.7 gm of nitrogen per day. During the 20 day period from May 9 to May 29, although the patient's nitrogen intake was

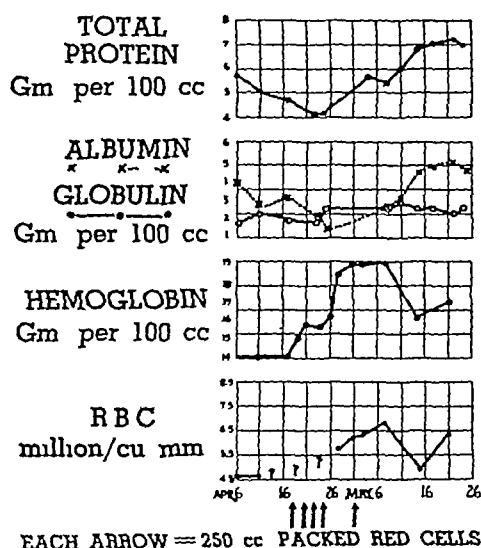


Fig 5 (case 4)—Course of a patient with the early nephrotic phase of glomerulonephritis before during and after administration of packed red cells.

almost identical to that of the previous period, he had a positive nitrogen balance of about 8 gm of nitrogen per day. This means that his urinary nitrogen excretion had fallen to much lower values than those of the previous period. This long period was adopted because it gives an over-all picture of what was taking place in the patient more effectively than would a shorter period. The nitrogen excretion was determined from three day specimens. During the period from May 9 to 29, the patient actually was storing about 50 gm of protein per day. Despite the fact that he did not gain weight, because of fluid loss, his muscles improved in tone and strength. His general condition improved tremendously, and at the end of this time the patient was discharged from the hospital, free from ascites but with a still palpable liver and spleen. Studies on other patients yielded similar results.

COMMENT

The enormous quantities of packed red cells given deserve comment. In case 1 (fig 1), the patient had a dry weight of 144 lb (65.3 kg). He had a calculated

blood volume of about 6,000 cc, and he received 4,750 cc of red cells. The patient in case 2 weighed 145 lb (65.8 kg) dry weight, and he, too, had about 6,000 cc of circulating blood. This patient was given 5,500 cc of packed red cells. The third patient was a small woman of 104 lb (47.2 kg) dry weight. She received 4,250 cc of packed red cells, despite the fact that her calculated blood volume was 4,000 cc. It is obvious that in these three patients these red cells could not have remained in the blood stream as circulating red cells. They must have disappeared from the circulation, and the assumption is made that they were broken down, since there is no apparent warehouse where these cells might be stored. There was no undue increase in the red blood cell counts or hemoglobin levels, except in the nephrotic patients. There was a gradual rise in the serum protein level, so that we are forced inescapably to the conclusion that there was a destruction of red cells, especially in the patients with hepatic cirrhosis. A plethora was produced in the patient in case 4 by introduction of a relatively small quantity of red cells, 1,250 cc. In this patient, who was nephrotic, apparently the red cells were not destroyed. There is no ready answer for this difference in the behavior in the two groups of patients. It has clinical substantiation in that frequently nephrotic patients have relatively normal red blood cell counts and hemoglobin levels, despite the hypoproteinemia in the presence of edema, but cirrhotic patients almost always have anemia as well as hypoproteinemia.

It might be argued that this effect of red cells may be considered nonspecific and that these responses were a result of an increase in the oxygen carrying capacity of the blood and improvement in the patient's general well-being. This cannot be denied, however, the administration of red cells seemed to have additional effects. First, there was a simultaneous response of the hemoglobin and serum protein levels. In no case did either the albumin or globulin level start to increase until the red cells were administered. Second, as soon as the red cells were administered, there was an increase in the globulin level, which occurred first. The explanation of this phenomenon is not apparent. Third, when the peaks of the hemoglobin level and red cell count were reached, there was a drop or leveling off in these values, with a continuing increase in the serum protein level, especially the albumin. Finally, a consideration of the nitrogen balance gave further evidence that the patients were utilizing the red cells as a source of protein. The patient in case 1, who had about 6,000 cc of blood, had an increase in the hemoglobin level from 8.7 to 15 gm per 100 cc, which represents a rise in total hemoglobin from about 520 to 900 gm. Thus, about 388 gm of hemoglobin appeared in this patient as the result of transfusions of red cells. During the time that the patient received 4,500 cc of red cells, he received about 1,300 gm of hemoglobin, which means that about 900 gm of hemoglobin disappeared from the circulating blood. Thus, there seems to be little question that there is a direct relationship between the administration of the packed red cells and the increase in the serum protein level. Some may argue that this does not prove that the cells themselves were used as a source of protein, and, indeed, the evidence does not entirely establish this. Administration of this

large number of red cells, with the large percentage of hemoglobin they carry, may spare the body the necessity of synthesizing hemoglobin. This would mean that all of the protein taken in the form of food could be utilized in the manufacture of serum protein. Against this argument is the fact that the more than 900 gm of hemoglobin that disappeared in the patient in case 1 during the time that he received these packed red cells must be accounted for. Thus, not only does there seem to be a direct relationship between the administration of the packed red cells and the increase in the serum protein level, but also there seems to be more than suggestive evidence that some of the hemoglobin was actually utilized for the synthesis of serum protein. Such a viewpoint immediately raises the question of whether, in patients with cirrhosis, anemia is the result of a tearing down of the red cells for the synthesis of serum protein in some manner. There certainly seems to be evidence that our patients, despite continuing liver disease, were able to synthesize both albumin and globulin and that, once their red blood cell count was up and the hemoglobin level was restored to normal, the serum protein level was easily maintained at its normal level. This does not mean that they were cured of their liver disease. Actually, all of the patients studied had a continuing cirrhotic process, and in two (whose data are not presented here) this was proved by biopsy. An alternative suggestion is that a red cell may be transformed into serum protein in some site other than in the liver. These questions must await further study. It should be noted that some of the patients who received large quantities of red cells had bone marrow depression, as shown by

bone marrow studies. Erythroid elements of the bone marrow were depressed following administration of large quantities of red cells. On the other hand, after the administration of red cells these patients were again able to synthesize their own red cells without difficulty, and their hemoglobin levels and red blood cell counts have been maintained at normal values.

In no case did we experience difficulty with the transfusions. As pointed out above, we encountered no transfusion reactions. So far as we could ascertain, there was no alteration in the agglutinins, the blood groups, or the blood types of the persons who received these red cells. We do not know at present whether the use of the aged red cells contributes in any way to their ease of destruction. Such destruction possibly may make the hemoglobin more readily available. Some type of liver injury may be necessary before this phenomenon of protein synthesis occurs. No evidence was obtained that any changes of the nature of hemosiderosis or hemochromatosis occurred in these patients. There were no color changes, and there was no evidence that there was any abnormality of the iron metabolism. The patient in case 1, after 18 months of follow-up, has no pigment changes and remains in good health.

CONCLUSION

Evidence is presented to show that packed red cells can be used as a source of protein in various types of hypoproteinemia. There is evidence that hemoglobin itself actually can be transformed into serum protein. No injury to patients receiving relatively large quantities of protein in the form of packed red cells was observed.

MENTAL RETARDATION IN CHILDREN

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and

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Mental retardation is one of the serious problems of childhood. According to the American Association on Mental Deficiency, quoted by Hungerford and associates,¹ 7% of the school population suffers from some type of mental retardation. Every mentally retarded child presents medical problems to a greater or lesser degree. In this paper we shall discuss some of the most important medical phases of the subject.

MATERIAL AND METHODS

Our data were obtained at the clinic for mentally retarded children of the Dr. Julian D. Levinson Research Foundation. In our series of 150 cases, there were 104 white children, 45 Negroes, and 1 Mexican. Table 1 illustrates the distribution of patients as to sex, race, and length of gestation.

The patients were investigated from the following standpoints. The time the retardation was first recognized, the length of gestation, the type of delivery, and the length of labor were determined. A history of the neonatal period was obtained, with special reference to complications, such as cyanosis, convulsions, respiratory

infections, hemorrhage, and fever of undetermined etiology. A history of the growth and development and of the diet and use of vitamin supplements was obtained. It was ascertained whether the child had sustained any trauma, with or without neurological manifestations, and whether he had had fever with convulsions, for possible evidence of encephalitis. The family was analyzed with reference to maternal illnesses before and during pregnancy, i.e., thyroid disturbance and Rh incompatibility, age of parents at birth of child, consanguinity of the parents, and familial neurological diseases manifested in other members of the family. The heating facilities of the home were determined, with reference to burning of batteries that might cause lead intoxication.

Physical examination included evaluation of the body build, height, and weight and measurement of the head and chest circumferences. Neurological examination was done to determine the presence of localizing signs. Psycho-

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logical tests were given to establish the mental level of the child and his capabilities in a training program designed to meet his needs. Laboratory studies included x-ray examination of the skull, chest, long bones and wrists. A complete blood count was done, and urinalysis included a test for phenylpyruvic acid. An electroencephalogram was made, especially when convulsive disorders were present. Pneumoencephalography was done in selected instances.

RECOGNITION OF RETARDATION

One would think that the parents themselves would recognize the mental retardation of their child. Of 150 children, however, only 34 were found to be abnormal at birth, while in 31 other children, mental retardation was first suspected between 1 and 6 months of age. Thirty-five children were thought to be retarded at 7 to 12 months of age. In 25 children retardation was not noticed until 13 to 24 months of age. The remaining 25 children

SYMPTOMS AND TREATMENT

In addition to the mental retardation, there were often associated symptoms. The most important symptom was convulsions. A history of convulsions was present in 40 cases, in 34 of which the children had grand mal, in 4 petit mal, and in 2 combined seizures. Thus, 26.6% of the children with mental retardation had convulsions. Table 2 shows the distribution of convulsions according to etiology.

We used diphenylhydantoin (Dilantin) in cases of the grand mal type of seizure. The dosage was variable and was increased gradually until the desired effect was obtained. In general, it was not necessary to use more than 1½ grains (100 mg) of diphenylhydantoin three times a day. Hypertrophy of the gums was the only side-effect encountered, and usually it did not necessitate withdrawal of the drug. Others have made similar observations.³ Occasionally phenobarbital was used in conjunction with diphenylhydantoin. Trimethadione (Tridione) was employed to control petit mal seizures. Leukopenia was not encountered in periodic examinations of the blood.

We have made it a rule to treat convulsions with or without electroencephalographic changes for at least two years after subsidence of seizures. The question of anti-convulsant therapy for patients with abnormal electroencephalographic patterns but no clinical seizures has not been settled,⁴ however, we use anticonvulsants in such cases.

Speech difficulty was present in 127 cases, 58 of these children had no speech at all at 1 year of age or over, and 69 children had indistinct speech. It is no exaggeration to say that almost all mentally retarded children have some speech disturbance. Some of our patients responded to speech therapy and play therapy.

Hearing was absent in 16 cases. Huizing and Pollack⁵ have shown the importance of hearing in speech development in normal children and discuss the importance of early diagnosis of hearing defects. We want to point out how difficult it is to determine whether a mentally retarded child can hear. Audiometry is impossible to carry out in mentally retarded children because they do not concentrate. The handclap and tuning fork tests are uncertain. We have resorted to the electroencephalography test, in which it is determined whether there is any electroencephalographic response to noise. We feel that this is one of the best methods of determining the hearing ability of the mentally retarded child.

In four children there was no vision clinically, and at least four others had poor vision (table 2). Lack of concentration was present in all of our cases. We found pneumoencephalography of prognostic value. When the encephalogram shows definite cortical atrophy, the prognosis is usually very poor and the parents should be advised to institutionalize the child. When the pneumoencephalogram shows no cortical atrophy, it does not mean that the retardation is not severe but that treatment is at least worth while. Occasionally, the pneumoencephalogram may have a beneficial effect on the retardation, at least temporarily.⁶ This, we believe, can be explained either by a decrease of the intracranial pressure or possibly by tearing of the adhesions that may be present following arachnoiditis.

TABLE 1—Classification of Mental Retardation

Diagnosis	Full Term				Premature				Total
	Male		Female		Male		Female		
	W*	N*	W	N	W	N	W	N	
Cerebral agenesis	24	0	14	4					48
Mongolism	12	5	10	1	4	1	1	2	30
Prematurity					1	3	2	4	10
Microcephaly	3	1	2	1			2		9
Postmeningitis retardation	2	2	2	2					8
Postencephalitis retardation	1	1	5	1					8
Hypothyroidism	3	1	2	1			1		8
Neonatal anoxia or hemorrhage	1		2			1	3		7
Nutritional deficiency	1†	2		1					4
Hydrocephalus			2		1		1		4
Cerebral trauma	1	1							2
Retardation due to toxemia of pregnancy				1					1
Myasthenia gravis		1							1
Hypothalamic syndrome	1								1
Hemangiomatosis (Sturge Weber syndrome)	1								1
Hypopituitarism	1								1
Premature synostosis of the skull							1		1
Total	51	20	39	12	6	5	9	8	150

* W represents white and N represents Negro.

† This patient was the only Mexican child in the series.

were over 2 years of age before mental retardation was discovered, with 5 cases not suspected by the parents until after the children were 5 years of age. The latter cases were first recognized by the teacher. We have encountered cases where even the teacher did not recognize the retardation until the child had been attending school for two to three years.

With the exception of mongolism, which is evident at birth, the diagnosis of mental retardation is not always easy even for the physician. Even when convulsions and spasticity are present, the child may have a fairly good mentality. Gibson² has recently outlined the differential diagnosis of mental retardation. In our series, we had to differentiate from time to time between mental retardation and behavior problems, cerebral palsy without mental retardation, amyotonia congenita, myasthenia gravis, and difficulty in speech and hearing not due to mental retardation.

It is important for the physician to explain to the parents the type of disorder being treated and the objectives of the program to be instituted both medically and educationally. The latter can be accomplished with the help of the psychologist, speech therapist, and special teacher. If the retarded child is educable, the spheres of education must be found. Even if the child is not educable, he may be trainable.

TYPES OF MENTAL RETARDATION

One of the most difficult problems is classification of mental retardation. Gibson,⁷ Yannet,⁸ and others have classified their cases according to etiology. In some of our cases, more than one etiological factor was found. For instance, there may have been a history of prematurity, neonatal cyanosis, and a fall on the head during infancy. In such cases, it was hard to decide which was the primary and which was the secondary cause. In other cases, no cause could be found. Table 1 reviews the etiological classification of our cases in terms of the primary

We believe that the cases we speak of as being due to cerebral agenesis are the ones referred to in the literature as due to undifferentiated amentia or primary amentia.⁹ Some other cases, however, may be due to neonatal cerebral anoxia.

Age, sex, race, and age of parents seem to have no relation to the occurrence of cerebral agenesis. It is just a maldevelopment of that portion of the brain that is concerned with mentality. Unfortunately, we do not yet know what part of the brain is concerned with mentality.

Convulsions were present in 16 of the 48 cases classified as due to cerebral agenesis. Grand mal occurred in 14 of these children and petit mal in 2 of them. In most cases the interval between attacks was irregular. Each child had more than one seizure.

MONGOLISM

Of the 150 children with mental retardation, 36, or 24%, were mongoloid. Mongolism, which was first described by Langdon Down¹⁰ in 1866, presents no prob-

TABLE 2—Frequency of Certain Defects and Other Factors in 150 Cases of Mental Retardation

Diagnosis	Average Age Retardation Was Noticed	Major Convulsions	Minor Convulsions	Combined Convulsions	No Speech Over 1 Year	Indistinct Speech Over 1 Year	Absent Hearing	Questionable Hearing	Absent Vision	Poor Vision	Spontaneous Delivery	Breech Delivery	Instrument Delivery	Cesarean Delivery	Average Age of Mother	Average Age of Father	Consanguinity of Parents
Cerebral agenesis	2½ yr	14	2		15	27	2	8			32		11	4	29	31	1
Mongolism	Birth	2			14	18	4			1	28	1	7		30	31	
Prematurity	2½ yr			1	3	3		2			6		8	1	26	29	
Microcephaly	5 mo	6		1	6	2	2	7	4		4	1	4		24	29	
Postmeningitis retardation	1½ yr	4			3	2	2	1			8				23	27	
Postencephalitis retardation	1½ yr	2	2		3	4		2			8				31	30	
Hypothyroidism	1½ yr				4	4					4		3	1	28	30	1
Neonatal anoxia or hemorrhage	8 mo	1			4	3	1	1		1	3*		4		33	33	
Nutritional deficiency	6 mo				2	1					3		1		28	30	
Hydrocephalus	2 yr				2						2			2	29	33	
Cerebral trauma	2 yr	2			1	1					2				22	22	
Retardation due to toxemia of pregnancy	8 mo	1				1					1				27	28	
Myasthenia gravis	10 yr					1					1				31	32	
Hypothalamic syndrome	7 mo	1				1					1				27	33	
Hemangiomatosis	3 mo	1			1						1				26	31	
Hypopituitarism	2 yr					1				1	1				31	33	1
Premature synostosis of the skull	6 mo						1			1	1				19	20	
Total		34	4	2	58	69	12	10	4	4	100	2	34	8			8

* Following difficult deliveries.

cause of the deficiency. Table 2 illustrates the type of delivery, age of parents at the birth of the child, and incidence of consanguinity found in each etiological category. We shall discuss each type separately.

CEREBRAL AGENESIS

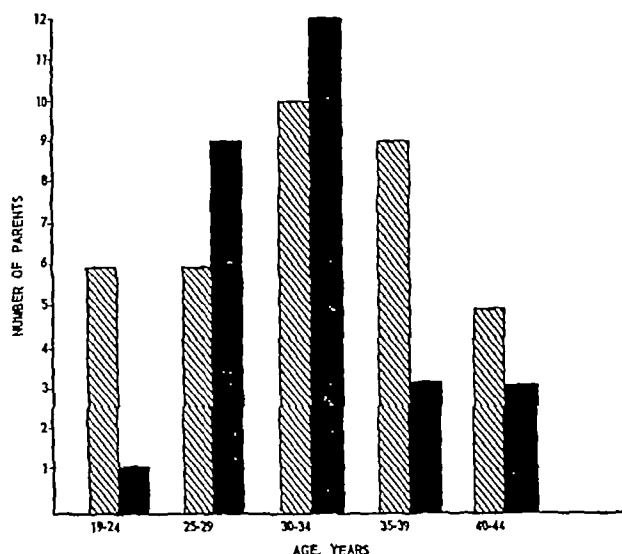
In 48 cases, or about one-third of the series, we were confronted with mental retardation for which no etiological factor could be found. The best we could do was to call it cerebral agenesis, or an under-developed brain. In some of these cases there was undoubtedly a genetic origin, but because no history of abnormality in the family was elicited, this factor could not be determined. These patients were mentally retarded but had no paralysis. Most of them were thin, but no physical abnormalities and no localizing neurological signs were noted. Since most of these children live a long time, there are few post-mortem reports. Years ago, one of our patients in whom we had diagnosed cerebral agenesis showed microgyria at autopsy.

lem in diagnosis. We were particularly interested in studying the various factors to which this disorder is ascribed, such as age of parents and consanguinity. For years the idea was prevalent in the literature that mongolism is most frequent in children of older parents born at the period of sexual exhaustion.

We found the average age of the mothers at the time of the birth of the mongoloid child to be 30 years. The chart gives a graphic representation of the distribution of the mothers' ages. Twenty-four mothers were over 30 years of age and 12 were under 30 years of age, the range being from 19 to 44 years of age. Benda¹¹ found 27% of the mothers in his series to be over 40 years old, while 41% were under 35 years of age. The average age of the father in our series was 31 years, with 12 being between 30 and 34 years old. Twenty-six of the fathers were over 30 years old and 10 were under 30 years of age. The range of the ages of the fathers was from 19 to 49 years, as

There were no instances of multiple mongoloid children in our series. Consanguinity did not occur among any of the parents. Twenty-eight of the mongoloid children were born spontaneously. One child was born by breech presentation with no complications. The remaining seven children were delivered by instruments. In only two instances were there complications at the time of the birth. One child was cyanotic for a few hours after delivery but the color improved with administration of oxygen, and the other child had delayed respiration, the exact time of the apnea being unknown.

Twenty-eight children were born at full term, and eight were prematurely born. Of the 28 children who were born at full term, 17 were boys (12 white and 5 Negro) and 11 girls (10 white and 1 Negro). Of the eight children born prematurely, five were boys (four white and one Negro) and three girls (one white and two Negro). Benda¹¹ found that 17.2% of his mongoloid children were prematurely born, and he believed prematurity to



Range of ages of parents at the birth of mongoloid children. The solid bar represents the fathers and the cross-hatched bar the mothers.

be an important factor in the etiology of mongolism. Our cases do not corroborate his theory. Mongolism was noted at birth in the great majority of cases or shortly thereafter.

It is commonly thought that mongoloid children have no convulsions. In our series, 2 of the 36 mongoloid children had convulsions of the major type. A generalized convulsion occurred in a 6-year-old white girl during a virus infection in which the temperature rose to 106 F rectally. There have been no recurrences. The second child was a white girl who had her first convulsion at 3 months of age. Seizures have been decreasing in frequency and severity and now occur about once every six months. In addition, this child has a congenital heart lesion diagnosed as an intraventricular septal defect. Our subsequent studies revealed several more mongoloid children with convulsions.

Fourteen mongoloid children over 1 year of age had no speech, while 18 had varying degrees of muffled or slurred speech. Four patients were under 1 year of age so the speech could not be studied.

Hearing was absent in four cases. One patient had severe myopia, which was corrected with glasses. Six mongoloid children were found to have a congenital heart lesion of the acyanotic type. Palmar horizontal lines were present in most of our cases, some bilaterally, others unilaterally.

Roentgenograms of the wrists were taken routinely and the bone age compared to the chronological age. In 10 instances there was a definite delay of development of the carpal ossification centers. In addition, six patients had carpal centers that were more translucent than normal, and the remaining children had normal ossification centers.

We believe that no one factor can be held responsible for the occurrence of mongolism. On the theory that mongolism represents a generalized infantilism, as shown by a decreased number of carpal ossification centers and underweight, we have been giving these patients thyroid extract. Along with this, an adequate diet with multiple vitamins is prescribed. Clinically, most patients showed an initial improvement in concentration and performance, but no definite conclusion can be drawn at this early stage of our study.

Durling and Benda¹² have pointed out that the spontaneous development of untreated and early institutionalized mongoloids was on an idiot level in 47% of their cases, however, with proper training many mongoloid children are educable. Several of our mongoloids are attending special schools or ungraded rooms of the public school. We feel that institutionalization should be avoided.

PREMATURITY

In our series of 150 cases of mental retardation, 28 patients, or approximately 18% of the total, were born prematurely. Eighteen of these 28 prematurely born children were found to have some etiological factor in addition to the prematurity to account for their mental retardation. For example eight were found to be mongoloid, four had had neonatal anoxia, two had microcephalus, two had hydrocephalus, one had hypothyroidism, and one had premature synostosis of the skull (table 1).

The remaining 10 children who had been premature were found to have no other etiological factor save the prematurity itself. The main problem is to distinguish prematurity with underdevelopment of the brain from prematurity complicated by other factors such as cerebral anoxia or hemorrhage. A careful, detailed inquiry into the birth and neonatal period may help make this distinction. Howard and Worrell¹³ found that prematurity per se had neither a beneficial nor a detrimental effect on later intelligence, however, our data indicate that prematurity may be an important factor in the development of mental retardation.

Interestingly enough, over 70% of these children who had no other etiological factors to account for the mental deficiency weighed 4 to 5 lb (1,814 to 2,268 gm), indicating that mental retardation is not in direct proportion to decreasing birth weight. The other three weighed between 3 and 4 lb (1,307 to 1,814 gm). Six cases, or 60% of the total, were the result of a normal spontaneous delivery. Of the remaining four patients, three were born by instrumental deliveries and one by cesarean section.

Only one patient in this series had convulsions. This was a 13-year-old Negro boy whose birth weight was 4 lb 12 oz. (2,155 gm). He had major and minor convulsions since 2 months of age at irregular intervals. Physical examination revealed no abnormalities. The electroencephalogram revealed a very abnormal record, with 2 to 3 per second spike activity.

MICROCEPHALY

Nine children, or 6% of the total of 150, had microcephaly. Four of the children were born by spontaneous delivery, one by a breech presentation, and four with instruments. Two of the children were cyanotic at birth. There were no other complications.

The average birth weight was 6½ lb (2,948 gm). Two white girls were premature. Among the seven full-term children with microcephaly, there were three white and 1 Negro boys, two white and 1 Negro girl.

The average age of the mother at birth of the child was 24 years and that of the father was 29 years. There was no history of consanguinity among any of the parents. The family histories were essentially noncontributory.

Convulsions were a predominant feature of microcephaly, occurring in seven of the nine cases. Six children had generalized convulsions, starting at an early age, while one patient had combined major and minor seizures. These children were severely retarded. Hearing was absent in two patients and very questionable in the others. Vision was impaired in four of these patients. There is no treatment for microcephaly.

POSTMENINGITIS RETARDATION

Among our cases there were eight patients who had become retarded following meningitis. Two children had recovered from tuberculous meningitis, one had hemophilus influenza meningitis, and one had pneumococcal meningitis. In the remaining four cases the bacteria were not discovered.

Four of the eight children had a history of convulsions. In three cases the convulsions occurred during the meningitis but did not recur. The fourth child, who had meningitis at the age of 4 months, has continued to have grand mal convulsions about every six weeks since the onset. Speech was totally absent in three patients over 1 year of age and in two others the speech was very indistinct and slurred. The remaining three children were under 1 year of age. Hearing was absent in two patients and questionable in one. One patient with tuberculous meningitis who received streptomycin therapy retained her hearing. In the other child who had had tuberculous meningitis, the hearing was questionable. Vision was intact in all of the cases.

It was pointed out by one of us (A. L.)¹⁴ that frequently meningitis is complicated by secondary encephalitis, which is particularly true in tuberculous meningitis. These children show a change in their personality, usually becoming restless and hyperactive, and many have sporadic convulsions. Sedative and anticonvulsive therapy is particularly indicated. Future evaluation of the wide spectrum antibiotics in the postinfection management of these conditions is being studied.

POSTENCEPHALITIS RETARDATION

Encephalitis without meningitis was responsible for eight of our cases of mental retardation. There was 1 white boy, 1 Negro boy, 5 white girls, and 1 Negro girl in this group. All of these children were born at full term, with the average weight of 7 lb 5 oz (3,317 gm). All of the children were born spontaneously, with no birth traumas or complications.

Four children had convulsions during the encephalitis, and the convulsions have continued to occur intermittently. Two children had grand mal and two had petit mal seizures. It is interesting to note that the younger children in our series had petit mal seizures.

Three children who were over 1 year of age were unable to say the simplest words, while four other children had indistinct speech. One child was under 1 year of age, and speech, therefore, could not be properly evaluated. Hearing was intact in six cases, and in two instances the ability to hear was doubtful. Vision was intact in all children. Horizontal nystagmus was present in one child, facial paresis in two other children, and hemiplegia in three children.

We are currently administering large doses of aureomycin to postencephalitic patients following the preliminary report of Stamps and co-workers.¹⁵ They found patients with postencephalitis disorders who showed improvement clinically and electroencephalographically. Anticonvulsant medication was continued during the antibiotic therapy. Serial electroencephalograms are required to evaluate this latest therapy, and a larger series of patients should be assessed statistically.

HYPOTHYROIDISM

Hypothyroidism, we believe, is responsible for more cases of mental retardation than is credited to it, since the hypothyroidism may be subclinical. Although innate cerebral retardation may coexist with hypothyroidism, thyroid therapy is still worthy of an adequate trial.

Hypothyroidism, we think, was responsible for eight of our cases of mental retardation. Our diagnosis of hypothyroidism was based on physical features with the help of basal metabolic determinations in one case and delayed ossification centers in two cases. Although delayed bone age is not limited to hypothyroidism, we consider it of great importance in cases of mental retardation where there is no explanation for the delayed bone growth other than hypothyroidism. This is particularly significant when the child has a cretinoid facies. We agree with Reilly¹⁶ that clinical observations are as important as laboratory tests in detecting this deficiency.

There were 3 white boys, 1 Negro boy, 2 white girls and 1 Negro girl, all of whom were born at full term. One white girl was born prematurely. The average birth weight of the group was 6 lb 8 oz (2,948 gm). Four children were delivered spontaneously, three were delivered by instruments, and 1 was born by cesarean section. Three of the eight children were cyanotic at birth and required oxygen.

The average age of the mother was 28 years and the average age of the father was 30 years at the birth of the child. Consanguinity was present in the case of a white boy in whom cretinism had been diagnosed at 11 months of age. At 14 months of age, we found only one ossifica-

tion center in the wrist on roentgenologic examination in this child. Speech was absent in four children who were over 1 year of age. The remaining four children had indistinct and slurred speech. The average age the mental retardation was noted was 1½ years.

One of the eight patients with subclinical hypothyroidism has shown considerable improvement with thyroid therapy, three have had some improvement, and four have remained about the same as before treatment. The possibility of innate cerebral lagging independent of the hypothyroidism as being responsible for the discrepancy between mental development and early adequate and prolonged thyroid therapy has been pointed out.¹⁷ Other investigators, however, believe good mental development can be achieved.¹⁸ Our patients are still being treated with thyroid extract and will be critically evaluated after a long-term study.

NEONATAL ANOXIA OR HEMORRHAGE

There were seven children who presented a definite history of neonatal anoxia and/or cerebral hemorrhage at the time of birth or shortly thereafter. We felt that their mental retardation was the result of this neonatal episode.

Four of these patients were prematurely born and were also the result of difficult forceps delivery. There was one set of twins in this group, each weighing approximately 4 lb (1,814 gm) at birth. At 3½ years of age, the twins, white girls, could not sit or walk alone and had no intelligible speech. They both had a left internal strabismus, were underweight, and had hyperactive deep tendon reflexes. The third prematurely born patient was also a white girl weighing 4 lb 8 oz (2,041 gm) at birth. She required oxygen and blood transfusions at birth because of her poor condition. At 12 years of age, she had a right foot drop, was ataxic, and walked on a wide base. She was able to say a few words indistinctly. The fourth prematurely born child, who had neonatal anoxia, was a Negro boy who weighed 4 lb 15 oz (2,240 gm) at birth. At 6 years of age he was found to be hyperactive with fair speech. He was very much of a behavior problem in addition to being mentally retarded.

The remaining three children in this group were born at full term but had traumatic births. One was a white girl who, at 2½ years of age, was so retarded that institutionalization was advised. This child became cyanotic six hours after birth and had a generalized convulsion at that time. The convulsions recurred at two weeks and eight weeks of life. She was unable to sit, stand, walk or talk, and was markedly underweight.

NUTRITIONAL DEFICIENCY

The relation of mental retardation to deficient nutrition is another problem with which we were confronted. In our series of 150 cases, we found 4 children who could be classified as having mental retardation secondary to nutritional deficiency. That nutrition can affect mental growth and development was illustrated recently by Traebert¹⁹ in Germany. We found that the apparent mental defect in our four patients was in great measure reversible after proper correction of the malnutrition, avitaminosis, and anemia. One child has returned almost to normal status, and the remaining three patients have improved considerably.

The first patient was a 16-month-old Mexican boy who had been treated for one month for persistent intermittent diarrhea. *Endamoeba histolytica* was found in the stools, and the patient improved with antiamebic drugs. At 16 months of age, however, he was poorly nourished, anemic, and unable to turn over. His muscular tone was poor. The infant also appeared listless and apathetic and looked mentally retarded. He was given iron and multiple vitamins, including vitamin B₁₂. An adequate diet was given. When seen two months later, he had gained 5 lb (2,268 gm), was sitting alone, was beginning to walk, and appeared alert. During subsequent visits he had continued to improve mentally almost to normal.

The second child was a Negro girl, 14 months old. She had a history of pneumonia at 6 months of age and frequent upper respiratory infections since that time. She could only turn over, but could not sit or walk. Speech was absent. It was felt that nutritional inadequacy played a role in the child's retardation. Her diet was improved and vitamin supplements added. The child improved although she is still subnormal mentally and physically.

The third and fourth patients of this group were both Negro boys, aged 6 months and 2 years respectively. Clinically, these children appeared to have rickets with scurvy. Both children were weak and anemic. Progress has been made by these children, although the rate of improvement has been slow. This raises the real possibility of reversible changes of the central nervous system resulting from prolonged malnutrition.

HYDROCEPHALUS

Hydrocephalus was present in four cases of mental retardation. Two patients were born spontaneously, while two others were delivered by cesarean section. One of the latter was also premature, weighing 4 lb 7 oz (1,913 gm) at birth. All four children were found to be underweight for their ages.

One infant, a 3½-month-old white girl, had a sacral meningocele. This had been operated on soon after birth and progressive enlargement of the head followed. The infant was spastic in all four extremities. Another infant, a 6-month-old Negro girl, was studied thoroughly; a subdural tap revealed no abnormality. The cause for progressive hydrocephalus, however, could not be found. In a similar fashion, the basic cause of the hydrocephalus could not be ascertained in the remaining two patients, a 4-year-old white girl and a 3-year-old white boy. All four children were found to be markedly retarded for their ages.

Hydrocephalic children, we believe, should be given every chance to prevent further thinning of the brain. We favor the ventriculocisternostomy of Torkildsen²⁰ for reestablishing circulation and absorption of the cerebrospinal fluid. Unfortunately, in these patients the hydrocephalus, when seen by us, was already too far advanced to warrant such a procedure.

CEREBRAL TRAUMA

Accidental trauma to the head, we believe, was responsible for mental retardation in two patients. The first child, when seen by us, was 16 years old. He was a white boy who apparently developed normally until the age of 3 years. At that time he fell one story out of an

open window, and convulsions developed one month later. Since then he had failed to progress mentally and was unable to speak well. Pneumoencephalography revealed an excess of air over the cortex, indicating cortical atrophy.

The second patient was a 19-month-old Negro boy who was hit on the head by a door at 3 months of age. At the time of the injury, he was unconscious for five minutes. He became cyanotic shortly thereafter, and had a generalized convulsion, which had not recurred. At 19 months of age he was still unable to sit without support, had no speech, and was markedly retarded.

MISCELLANEOUS

The remaining six patients with mental retardation included one born following toxemia of pregnancy, one with myasthenia gravis, one with the hypothalamic syndrome, one with hemangiomatosis (Sturge-Weber disease), one with hypopituitarism, and one with premature synostosis of the skull.

The patient in whom we considered toxemia of pregnancy as the etiological factor was a Negro girl, 5 years old. The mother had hypertension and was acutely ill at the time of delivery. The child weighed 7 lb 13 oz (3,542 gm) at birth. Development of the child was slow, and at 4½ years of age she had her first generalized convulsion. The convulsions have been irregular in frequency since then. Physically, the child was found to be within normal limits.

The case of myasthenia gravis, with mental retardation, is included here because of the difficulty it presented in the diagnosis. This case will be reported elsewhere in greater detail.

The diagnosis of hypothalamic syndrome was made for a 5-year-old white boy who was found to have a buffalo type of fat distribution and was very obese. His neonatal history was noncontributory. At 3 months of age polydipsia and polyuria developed. At 7 months of age he had his first convulsion. At 2½ years of age he began to gain weight very rapidly. His intelligent quotient was found to be 41.

Hemangiomatosis (Sturge-Weber syndrome) was diagnosed in a 5-year-old white boy who was born with large port-wine areas of the right side of the face and neck. A black mole was present on the right forehead. At 3 months of age he began to have about 10 to 15 generalized convulsions daily. At 2 years of age his seizures were predominantly right-sided. Calcifications of the brain were seen in roentgenograms of the skull. A cerebral arteriogram revealed dilatation of the vessels. He was markedly retarded.

Hypopituitarism was diagnosed in a 10-year-old white boy. Clinically, he resembled a person with Cushing's syndrome, with prominent adiposity of the face, neck, and trunk. He was 56 in (140 cm) tall and weighed 123 lb (55.9 kg). Severe myopia was present. Horizontal nystagmus was found on lateral gaze. His speech was indistinct, but the hearing was intact. X-ray examination of the skull revealed no abnormality. The intelligent quotient was 40. His parents were first cousins.

Premature synostosis of the skull was found in a 6-month-old Negro girl. Her head measured 14¾ in (36.87 cm) and her chest measured 16½ in (41.25 cm). The fontanelles were closed. The infant was unable

to hold up her head, and it was doubtful whether she could see or hear. The extremities were spastic and the deep tendon reflexes were hyperactive. She was admitted to the children's division of the Cook County Hospital for further study. It was hoped to give the brain a chance for maximal growth by surgically separating the bones of the skull at the suture lines. Accordingly, surgery was done at the age of 7 months. At 1 year of age the infant was reevaluated and, unfortunately, no improvement had occurred. The head now measured 15 in (37.5 cm) and the chest 18 in (45 cm), and the infant presented a strikingly small head. She could not support her head and did not see or hear, the extremities were rigid. Our patient was subjected to surgery since this measure seemed to be the only hope for her, however, the final result was not satisfactory.

SUMMARY

One hundred and fifty cases of mental retardation in children have been studied. In only 65 cases was the retardation discovered at 6 months of age or earlier. In some cases the retardation was not recognized until the child started to school. Convulsions were found in 26.6% of our cases, of which 85% were grand mal, 10% petit mal, and 5% combined seizures. Convulsions were particularly frequent in microcephaly. Grand mal and petit mal convulsions were usually controlled with diphenylhydantoin (Dilantin) and trimethadione (Tridione) respectively. Electroencephalography is an important adjunct not only in determining the type of convulsive disorder but also in determining the patient's ability to hear. The age of the parents at birth of the child and consanguinity could not be interpreted as primary factors in the etiology of any type of mental retardation. We found thyroid extract of value in subclinical hypothyroidism. We have also used thyroid extract in the treatment of mongolism. We have used wide spectrum antibiotics in the treatment of mental retardation following encephalitis. Improvement of nutrition is an important part of the therapy of mental retardation. Cooperation between physicians, psychologists, speech therapists, and special teachers is needed for the management of mental retardation.

30 N Michigan Ave (Dr Levinson)

The Headache of Brain Tumor.—Tumors occur more frequently on the brain than on any other organ of the body, and patients themselves are beginning to realize this. Therefore, when a patient complains of headache, the physician's greatest concern may be whether or not he has a tumor of the brain. More often than not we must learn what we can from his story and on the basis of it, decide how much further to proceed with examinations that may involve surgical procedures. If the patient says that the headache began in recent weeks or months, that it is becoming worse, that it recurs in the same situation, that it often awakens him early in the morning, that it is accentuated or even brought on by coughing, stooping, straining or shaking the head, then an organic intracranial lesion is suspected. If precipitate vomiting, especially before breakfast, is associated, and if the pulse, when felt carefully and continuously for two or three minutes, becomes slow or irregular at times, then the condition may be critical and in all probability caused by a tumor.—H. W. Wolman, M.D., *What the Patient's Story Suggests to the Neurologist*, *The Journal of the Iowa State Medical Society*, May, 1953.

DIRECT MEDICAL SERVICE PLAN IN THE HOTEL INDUSTRY

Frank P. Guidotti, M D , New York

Comparatively few persons in the medical profession other than those actively engaged in the practice of industrial medicine are aware of the extent to which organized workers are covered by health and welfare plans today. Information on this subject is not restricted, but neither is it widely disseminated. Since the end of the war, establishment of such plans has been a top objective in collective bargaining of most of the industrial unions in the country. As an indication of the scope of such employee benefit plans, the U. S. Department of Labor reported in mid-1950, in its Bulletin No. 1017, that 7,128,000 workers were covered by health and welfare plans. About two-thirds of these plans also embody pension plans. These workers are represented by the Congress of Industrial Organizations, the American Federation of Labor, and unaffiliated unions, and they comprised almost half the organized workers in the country at that time. In the two and one-half years since the middle of 1950, the labor force has grown, the number of organized workers has grown, and the unions' drive for "security programs" has been accelerated by the wage stabilization program that limited income gains. The majority of these plans are financed by the employer, although a substantial portion represent joint employer and employee financing. Collectively bargained employee health and welfare plans now cover a substantial portion of the labor force in our country today. They are an important new phase in the field of medicine and health, and they seem to be here to stay.

THE NEW YORK PLAN

To give you an example of how they are operated, I would like to tell you about the health-welfare plan with which I am associated. I do not presume to say that it is typical of the majority of those in operation, but it is a good example of how a well-administered program of this sort operates. The hotel industry of New York City became the first in the country to establish an industry-wide group insurance program for hotel employees on March 1, 1945. This program, known as the New York Hotel Trades Council and Hotel Association Insurance Fund, was created through the joint action of the New York Hotel Trades Council (affiliated with the American Federation of Labor), representing labor, and the Hotel Association of New York City, representing management.

During the first seven years of the plan's operation, \$7,298,000 in welfare benefits was received by hotel workers and their families among 35,000 eligible hotel employees insured by the plan. These benefits include life insurance, accidental death and dismemberment insurance, weekly accident and sickness benefits, cost of Health Center care, and hospital benefits for members and dependents through the Associated Hospital Service

(Blue Cross) of New York. Recently, in addition to the welfare benefits already listed, a pension fund was established, which will provide retirement benefits for hotel employees.

Having established this part of a social welfare program and desirous of making certain that all hotel employees would have available to them a medical care program as a supplement to and part of an over-all picture, the New York Hotel Trades Council and the Hotel Association of New York City in 1949 decided to establish their own jointly operated and controlled Health Center. The New York State Legislature passed a special act in April, 1949, authorizing a membership, non-stock corporation in the name of the New York Hotel Trades Council and Hotel Association Health Center, Inc., "to establish and maintain a health center to furnish any or all of the following: medical care, surgical care, medical advice and treatment, medicine and apparatus, and other health services to ambulatory patients, all through duly licensed physicians, or in the case of optical examinations, through duly licensed optometrists. The corporation shall furnish such care, treatment, services and supplies to employees covered by collective bargaining agreements between the New York Hotel Trades Council (a labor organization affiliated with the American Federation of Labor), the Hotel Association of New York City, Inc. (a membership corporation composed of hotels in the city of New York), and such hotels, either gratuitously or for a compensation determined reference to the value thereof. Such health center shall not be established and maintained in the State of New York without the prior written approval of the State Board of Social Welfare as to the adequacy of the facilities and standards of care of the health center, including adequacy of personnel, and such health center when established shall be subject to the supervision, visitation and inspection of the State Board of Social Welfare."

The site chosen for the Health Center was a five story building situated in mid-Manhattan at 50th St. and 10th Ave., formerly occupied by the Young Women's Christian Association. It was renovated into a modern attractive structure and outfitted with up-to-date equipment for diagnosis and treatment. The amount expended for purchase of the building, architectural changes, renovations, and equipment was \$800,000. In the autumn of 1950, written approval was given by the New York State Board of Social Welfare for the establishment and maintenance of the Health Center.

The medical staff at the Health Center is composed of well recognized members of the profession. The directors and chiefs of clinics are all certified by their respective boards and colleges. The junior members of the staff are, for the most part, similarly qualified. Our efforts to have on service for the benefit of the hotel employees only professional men in good standing in the county, state, and national societies has been successfully accomplished. Rather than put our medical services on a production-line basis, in which the individual person

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Medical Director, New York Hotel Trades Council & Hotel Association Health Center, Inc. Assistant Clinical Professor of Industrial Medicine, New York University Post-Graduate Medical School

becomes only a number, we are working toward a doctor-patient relationship comparable to the highest ideals of private practice

Many employees in this industry are so situated financially that obtainment of the services of a private physician for them is out of the question. In addition, the amount of time necessary for their admission to and treatment in a charitable clinic is almost prohibitive, because if they do not work they are not paid. At the center all patients, except in cases of emergency, are treated on an appointment basis. Hence, loss of time is reduced to a minimum. Our hope is ultimately to arrange matters to such an extent that if an employee has an appointment at the Health Center for necessary treatment he will suffer no financial loss. Every effort is made to convince each patient that his problem is our problem, and no effort is spared to make him feel and be better mentally as well as physically. The spiritual element of friendliness is a fundamental concept of the Health Center.

ELIGIBILITY REQUIREMENTS

All unionized hotel workers are eligible for outpatient services at the Health Center as of the first day of employment. In cases in which hospital care is necessary, workers are required to have six consecutive months in good standing as members of the New York Hotel Trades Council and four months of full-time employment in a union-contract hotel or concession that is a contributing member of the insurance fund. Members of employees' families are not eligible for care at the Health Center unless they are also qualified hotel workers.

ORGANIZATION AND ADMINISTRATION

A Board of Directors consisting of 20 members, 10 from the New York Hotel Trades Council and 10 from the Hotel Association of New York City, have full authority to control all the affairs and business of the corporation. A Medical Advisory Council, composed of 15 outstanding physicians well known in such allied fields as industrial medicine, public health, and industrial hygiene, was organized for the purpose of establishing standards and rules and regulations relating to professional and technical services for the Health Center, reviewing physicians' qualifications, recommending appointment of physicians to the staff, and hearing and judging disputes between the corporation and a patient or physician with respect to professional and technical matters and making appropriate recommendations to the Board of Directors.

A Medical Board composed of the 14 directors and chiefs of the various medical services in the Health Center has the function of supervising the conduct of the professional staff operating the clinics with regard to problems presented in the usual course of events of the Health Center. The Medical Director of the Health Center has the following main functions: (1) direction and supervision of the medical and professional services of the Health Center, (2) serves as an ex-officio member of the Board of Directors, to whom he gives quarterly reports on Health Center services, as a member of the Medical Advisory Council, and as Secretary of the Medical Board, (3) coordination of the entire Health Center organization together with the Administrative Director.

The Administrative Director, Mr. W. H. Spahn, in addition to duties as director of the insurance fund, supervises the lay staff of 35 persons, is responsible for purchasing, accounting, statistics, and maintenance, and is an ex-officio member of the Board of Directors and the Medical Advisory Council.

PHYSICIAN REQUIREMENTS FOR HEALTH CENTER APPOINTMENT

Applications from physicians interested in a position on the Health Center staff are received by the Medical Director for review. An appointment is made for a personal interview. The application, together with interview blank, is then referred to the Director of Medicine or the Director of Surgery for review of the applicant's record of training and experience. The application with the director's comments is then passed on to the chairman of the Committee on Professional Standards of the Medical Advisory Council, for review by his committee. Final approval is given by the Medical Advisory Council.

The general qualifications are as follows: 1. The applicant must be a graduate of a medical school approved by the Council on Medical Education and Hospitals of the American Medical Association at the time of his graduation. 2. He must have completed an internship of at least one year in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association or its equivalent in military service. 3. He must be licensed to practice in the State of New York. 4. He must be registered with the Education Department of the State of New York. 5. He must be a member in good standing of his county medical society. 6. He is required to carry a minimum of \$25,000/\$75,000 malpractice insurance. 7. He must furnish proof of good moral character.

The specific qualifications are as follows: A general medical physician must have a staff appointment in the inpatient or outpatient department of a voluntary or municipal hospital approved by the Joint Commission on Accreditation of Hospitals (which consists of representatives from the American College of Physicians, American College of Surgeons, American Hospital Association, American Medical Association, and Canadian Medical Association). A specialist must be certified by the American board in his respective specialty, or he must have an appointment as attending or associate attending physician in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association for resident training in that specialty.

OPERATION OF THE PLAN

The medical staff of the Health Center is comprised of 175 physicians, of whom 30 are general practitioners and 145 are specialists. Fifteen general practitioners, averaging nine hours each per week, and 75 specialists, averaging three hours each per week, participate in active clinic assignments. The medical-technical staff consists of 13 registered nurses, 4 laboratory technicians, 3 x-ray technicians, 2 physiotherapists, 2 pharmacists, 2 registered medical record librarians, 1 optometrist, and 1 registered medical social service worker.

The Health Center began to provide medical care on Oct. 25, 1950, for 35,000 hotel workers, ranging in age

from 18 to 85, who are employed in 180 New York City hotels and 52 concessions. Two-thirds of the hotel employees are male, and the median age is 47. The 10 local unions that comprise the New York Hotel Trades Coun-

TABLE 1—Age and Sex Distribution of 9,729 Patients Using the Health Center from Jan 1, 1952, Through Oct 31, 1952

Age Distribution	No	%
Under 20	27	0.28
20-29	889	9.14
30-39	1,682	17.29
40-49	2,468	25.37
50-59	2,770	28.47
60-69	1,597	16.41
70 and over	281	2.89
Age unknown	15	0.15
Total	9,729	100
Sex Distribution	No	%
Male	8,417	86.96
Female	3,312	34.04
Total	9,729	100

TABLE 2—Medical Services at the Health Center for Two Years Ending Dec 31, 1952

	1951	1952
New Patients	8,887	5,810
	No. of Times Service Performed	
Clinic Services		
Admitting (started May 1 1951)	0,302	11,133
Allergy	0,016	7,300
Arthritis and rheumatism *	011	268
Cardiology	483	353
Chest diseases	472	472
Dermatology and syphilology †	3,100	2,745
Diabetes *		306
Ear, nose and throat	4,500	3,137
Endocrinology and metabolism *	648	
Eye	4,072	3,898
Gastroenterology (includes gastroscopic examinations)	1,329	630
General medicine	22,140	20,808
Internal medicine ‡	1,392	
Neurology		481
Neurology and psychiatry *	622	
Obstetrics and gynecology	1,308	1,619
Orthopedics	2,248	2,625
Peripheral vascular diseases	1,457	1,560
Physical medicine—consultations	610	701
Proctology	1,618	1,270
Psychiatry		189
Social hygiene		400
Surgery—consultations	1,134	903
Surgery—minor		385
Urology (includes cystoscopic examinations)	3,908	5,800
Total	63,354	65,999
Preplacement Examinations	508	244
Diagnostic Procedures		
Audiogram	178	123
Basal metabolism test	570	411
Electrocardiogram	1,669	1,480
Eye refractions (began Dec 1, 1951)	74	1,658
Laboratory tests	30,907	21,865
Chest microfilm roentgenogram	7,083	4,820
Special roentgenogram	6,439	6,223
Total	47,470	36,030
Accessory Therapeutic Services		
Physical therapy	12,104	11,538
Rehabilitation	2,353	3,169
Superficial roentgen therapy	400	233
Injection therapy	6,659	5,984
Total	21,516	20,915
Medical Social Service	4,989	4,181
Pharmacy prescriptions	27,809	26,714

* Clinic title discontinued during 1952.

† The syphilology service was transferred to the new social hygiene clinic during 1952.

‡ Clinic title discontinued June 1 1951.

cil cover the various occupational groups in the hotel industry, numbering over 200 and representing the gamut of hotel employment.

At the Health Center, the following medical services, in addition to diagnostic and therapeutic care, are pro-

vided: preplacement examinations, periodic examinations, physical examination to employees on return to work after illness or injury, and rehabilitation and health education for employees, including a nutritional program. Adequate medical records, industrial health research, analysis of health experience, coordination with community health programs, and collaboration with union and management all contribute to a healthful and safe working environment.

A complete physical examination at the Health Center is conducted by a well-trained general practitioner, whose concern is health as well as disease, and is supplemented by a 70 mm roentgenogram, urinalysis, and blood tests. The details of the examination are recorded, and definite action is planned, including follow-up and periodic rechecking of the patient. Any abnormalities requiring special attention are referred to staff specialists in the Health Center. Each general medical session is under the supervision of an internist, who acts as a consultant for his session. The number of patients served in each specialty clinic for the years ending Dec 31, 1951, and Dec 31, 1952, is shown in the following tabulation.

	1951	1952
Ophthalmology	2,656	2,248
Otorhinolaryngology	1,855	1,017
Dermatology and syphilology	1,359	1,414
Orthopedics	973	1,133
Urology	782	1,130
Surgery (consultation and minor operations)	713	689
Obstetrics and gynecology	703	727
Physical medicine consultations	675	604
Peripheral vascular diseases	531	463
Proctology	501	491
Allergy	370	504
Gastroenterology	360	268
Neurology and psychiatry	334	407
Thoracic diseases	310	320
Cardiology	279	323

Table 3 shows the diagnoses established for the year ending Dec 31, 1952. A total of 20,980 diagnoses were made (an average of 1.89 diagnoses per patient).

In line with the Health Center program of preventive medicine, a regular health information program is maintained for members of unions that have contracts with the hotels. This takes the form of articles and pictorial features on Health Center activities appearing regularly in the "Hotel and Club Voice," the weekly newspaper of the Hotel and Club Employees Union, Local 6. This paper is mailed to the homes of 27,000 of the 35,000 hotel workers eligible for the center's services. Other locals of the Hotel Trades Council send out pamphlets to their employees. Thus, not only the hotel members but their families as well receive the Health Center's message. Information is also released through the monthly newsletter, "This Month," of the Hotel Association of New York City and through the publications of the New York Hotel Trades Council, and pamphlets are distributed at the Health Center and insurance fund office on such subjects as prenatal care, heart disease, overweight and underweight, diabetes, tuberculosis, and blood bank services.

In addition to the medical services rendered in the Health Center, we have given the following services outside the center: in-hospital care, free ambulance service, visiting nurse service, and blood bank services. From Oct 26, 1950, to Nov 1, 1952, there were 1,306 hospi-

tal admissions, of which 914 were surgical, 382 were medical, and 10 were maternity, with an average stay of 9.9 days

There are, however, certain exclusions to Health Center care. They are as follows: (1) occupational diseases and injuries covered by workmen's compensation

TABLE 3—Most Prevalent Diagnoses for 1952, According to the International Classification

Code No	Diagnosis	No of Diagnoses
880	Refractive errors	1 450
287	Obesity not specified as of endocrine origin	728
460	Varicose veins of lower extremities	722
444	Essential benign hypertension without mention of heart	618
461	Hemorrhoids	467
728.8	Other muscular rheumatism fibrositis and myalgia	420
240	Hay fever	337
470	Acute nasopharyngitis	332
396	Other diseases of ear and mastoid process	331
470	Acute upper respiratory tract infection of multiple or unspecified sites	307
741	Synovitis bursitis, and tenosynovitis without mention of occupational origin	269
610	Hyperplasia of prostate	281
560.0	Inguinal hernia	270
370	Conjunctivitis and ophthalmia	262
635	Menopausal symptoms	262
728.0	Osteoarthritis	260
500	Acute bronchitis	257
388	Other diseases of eye	223
478	Acute tonsillitis	201
310	Anxiety reaction without mention of somatic symptoms	196
281	Syphilis late latent	191
472.1	Acute pharyngitis other	184
260	Diabetes mellitus	182
181	Dermatophytosis	178
263	Anemia of unspecified type	169
N846	Sprains and strains of sacroiliac region	166
514	Deflected nasal septum	163
241	Asthma	169
291	Iron deficiency anemias	166

or similar legislation, (2) service-connected disabilities in cases of veterans who are entitled to care through government facilities, such as the Veterans Administration, (3) conditions requiring highly specialized treatment or confinement to special institutions. Among these are acute alcoholism, addiction to drugs, treatment of tuberculosis when a sanatorium or special hospital is required, mental or nervous disorders that demand long-term care, and chronic diseases that must be treated in specialized institutions, (4) home care, with the exception of emergency calls to determine need for hospitalization, (5) deep x-ray therapy for malignant lesions, (6) special or private duty nursing care, and (7) surgery or electrolysis for cosmetic reasons

HEALTH CENTER AS A SUPPLEMENTARY INSTITUTION

The services at the Health Center are offered to the hotel employees in an effort to help them reestablish their health and encourage them to further individual effort for improvement of their personal circumstances, socially, ethically, and financially. All costs are met by the employer. If an employee has a private physician, the center cooperates with him in every possible way by furnishing his patient with diagnostic and special services, including laboratory and roentgenographic procedures. All reports of our examinations are, on request, forwarded to the referring physician, and, if additional information is requested, every endeavor is made to comply with the request. A sincere effort is made to

cooperate with physicians in private practice to maintain the principle of proper patient-doctor relationship. We supplement existing community services by cooperating with all hospitals and departments of health and welfare of the city as well as private social agencies.

CHOICE OF PHYSICIAN

No sick hotel employee is compelled to visit the Health Center. In order that the proper patient-physician relationship may be established, any person must be permitted a free choice of physician. Every effort is made at our Health Center to provide such an opportunity. If for any reason a patient becomes dissatisfied with the assigned physician at the time of his first visit or subsequent visits, he has only to indicate that such is the case, and another physician is assigned to determine whether the situation can be improved. No effort is made to urge professional services, medical or surgical, on a patient. It is recognized that for successful outcome of a medical problem as much depends on the patient's attitude toward and confidence in the physician as on the dispensing of a pill or the use of the scalpel.

FINANCIAL ASPECTS

Medical service at the Health Center is provided without charge to eligible patients, except for prescriptions filled in the Health Center pharmacy. Staff physicians are paid on an hourly basis at the Health Center. In cases in which hospital medical or surgical treatment is authorized by the Health Center, the physician is reimbursed by the Health Center in accordance with a fee schedule equivalent to the Blue Shield Plan (United Medical Service of New York City). Each patient hospitalized has Blue Cross coverage through the insurance fund. As stated earlier, the funds for the entire welfare program are provided by employer contributions, which consist of 3% of the weekly payroll of each contributing member hotel and concession and which are allocated for the insurance fund.

TABLE 4—Comparative Costs and Utilization of the Health Center for the First Two Years of Operation*

	At Health Center		Away from Health Center		Total	
	Year Ending Oct 31 1951	Year Ending Oct 31 1952	Year Ending Oct 31 1951	Year Ending Oct 31 1952	Year Ending Oct 31 1951	Year Ending Oct 31 1952
Cost (before depreciation)	\$486,819.53	\$503,688.34	\$3,594.55	\$0,837.00	\$490,414.08	\$504,525.39
Cost per patient visit †	8.25	7.71			9.16	8.72
Cost per enrollee ‡	14.46	14.57	1.09	1.91	16.00	16.48
No. of visits per patient	6.18	6.00				
No. of visits per enrollee	1.75	1.89				

* Number of patients served for the year ending Oct 31 1951 9,547 for the year ending Oct 31 1952 10,882 total number of different patients served in first two years 14,936

† Patient visits (exclusive of preplacement and special examinations) for the year ending Oct 31 1951 59,009 for the year ending Oct 31 1952 65,824

‡ Monthly average of enrollees for the year ending Oct 31 1951 33,608 for the year ending Oct 31 1952 34,562

CONCLUSIONS

In August, 1952, in recognition of the medical standards of the Health Center, this organization was certified by the American Foundation of Occupational Health and the Industrial Medical Association. This industrial

health program benefits both the employer and the employee. The advantages to employees include reduction of occupational illness by early discovery of diseases, less absenteeism for illness, and an improvement in the worker's personal health, which contributes to greater satisfaction in life. The employer minimizes his labor turnover, has maximum job production by less absenteeism, and maintains better union-management relations.

The wheel has been accepted as a fundamental example of progress, its component parts recognized for their individual contribution to the entity. Through the cooperative efforts of management, labor, and the medical profession, problems will be solved rather than created. These powers form the spokes of the wheel of industrial health achievement.

501 W 50th St (19)

EFFECT OF STREPTOMYCIN IN SYNOVIAL TUBERCULOSIS OF THE KNEE

William S. Smith, M.D.

and

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Bony ankylosis has long been the desired end-result in tuberculosis of a joint. It is generally believed that the pathological process has the best opportunity of becoming and remaining arrested when ankylosis occurs. Joint motion, on the other hand, is precarious with regard to progression and relapse. Therefore, one must assume that any drug therapy must eventuate in complete eradication of the infection unless osseous ankylosis is still to be considered as the desired end-result.

Drug therapy and its limitations in chronic infection of bone alone are becoming more clearly recognized. The presence of decreased local vascularity, massive fibrosis, necrosis, sequestrums, and other encapsulated foci would lead one to expect poor results in drug therapy. These conditions result in failure to obtain satisfactory local levels at the source of the infection. When critically analyzed, little evidence exists to warrant any conclusions that such therapy is beneficial in cases of long-standing osseous tuberculosis. On the other hand, in synovial tuberculosis local vascular conditions would seem to favor increased local availability of the drug.

Streptomycin has been shown to exert a definite bacteriostatic effect on tubercle bacilli in vivo under certain conditions. For this reason and in view of the circumstances listed, the means of obviating ankylosis and simultaneously arresting infection are at least within the realm of possibility. Bickel and co-workers¹ have reported beneficial effects in two cases of synovial tuberculosis proved by biopsy. These cases were followed 6 and 18 months, respectively. Two cases of synovial tuberculosis treated by streptomycin plus synovectomy were described by Smith and Yu.² Streeten^{3a} obtained

beneficial effects with local alkalinization and streptomycin therapy, but the follow-up period is of insufficient duration to warrant conclusions. Recently Bosworth,³ Harris,⁴ and others summarized their results in large numbers of persons with bone and joint tuberculosis.

Owing to the fact that tuberculous synovitis is a manifestation of a generalized disorder, all but one of the five patients in this report were under sanitarium care. In the fifth case, complicated by pregnancy, the home situation was considered ideal for treatment. All cases were proved by cultures for tubercle bacilli and by animal inoculation of aspirated joint fluid. The dose of streptomycin varied between 1 and 2 gm. per day administered parenterally for a total of 90 to 120 days. The roentgenograms demonstrated no osseous involvement prior to treatment. All patients were immobilized in plaster for several months to a year. In the more recent cases *p*-aminosalicylic acid was used as an adjunct in streptomycin therapy, since its effect in preventing resistance of tubercle bacilli to streptomycin seems well founded. The daily dose varied between 9 and 12 gm. of sodium and potassium *p*-aminosalicylic acid given orally.

REPORT OF CASES

CASE 1—In September, 1945, a 33-year-old man with known pulmonary and urogenital tuberculosis was referred to the Orthopedic Section with a complaint of atraumatic swelling of the left knee. Guinea pig inoculation of fluid aspirated from this joint resulted in recovery of tubercle bacilli. The erythrocyte sedimentation rate was 55 mm. per minute. A definite program of treatment was outlined, but the patient refused these recommendations and signed a release from the sanitarium against his physician's advice.

Because of pulmonary and central nervous symptoms in October, 1946, he had returned to a sanitarium and then was referred to the University Hospital for reevaluation. About one year had elapsed since his previous examination. The knee was still boggy, there was slight flexion deformity, and atrophy of both thigh and calf was marked. Roentgenograms at this time, as in 1945, showed rather diffuse osteoporosis about the left knee, but there was no evidence of osseocartilaginous destruction. Further studies confirmed the presence of active minimal pulmonary tuberculosis and active right renal tuberculosis. The renal tuberculosis was treated by nephrectomy, from which the patient made an uneventful recovery. The synovial tuberculosis was combated with continuous immobilization, with removal of the plaster at three month intervals for x-ray examinations, none of which revealed true bone involvement. Sanitarium care was resumed after hospital discharge.

From the Department of Surgery, Orthopedic Section, University Hospital.

1. Bickel, W. H., Young, H. H., Pfuetze, K. H., and Norley, T. Streptomycin in Tuberculosis of Bone and Joint, *J. A. M. A.* 137: 682 (June 19) 1948.

2. Smith, A. De F., and Yu, H. I. Streptomycin Combined with Surgery in the Treatment of Bone and Joint Tuberculosis, *J. A. M. A.* 142: 17 (Jan. 7) 1950.

3a. Streeten, D. H. P. Tuberculosis of Joints and Serous Membranes Treated with Local Alkalinization and Streptomycin Administration, *South African M. J.* 23: 777-782 (Sept. 17) 1949; 800-804 (Sept. 24) 1949.

3. Bosworth, D. M., and Wright, H. A. Streptomycin in Bone and Joint Tuberculosis, *J. Bone & Joint Surg.* 34A: 255-266 (April) 1952. Bosworth, D. M., Wright, H. A., and Fielding, J. W. The Treatment of Bone and Joint Tuberculosis: Effect of 1 Isonicotinyl 2 Isopropylhydrazine. A Preliminary Report, *ibid.* 34A: 761-771 (Oct.) 1952.

4. Harris, R. I., Coulthard, H. S., and Dewar, F. P. Streptomycin in the Treatment of Bone and Joint Tuberculosis, *J. Bone & Joint Surg.* 34A: 279-287 (April) 1952.

One year later, in 1947, symptoms and signs of meningeal irritation made their appearance and analysis of the cerebrospinal fluid confirmed the clinical diagnosis of tuberculous meningitis. Intrathecal and parenteral administration of streptomycin were combined, 0.2 gm daily for 36 days in the former case and 1 gm daily for 137 days in the latter. The patient made a complete recovery from the meningitis but unfortunately carries residual permanent eighth nerve deafness as a result of streptomycin toxicity. Immobilization of the knee was continued for another year.

For the past five years he has been on a program of full knee activity without any difficulty. There has been no pain with unrestricted activity, the erythrocyte sedimentation rate has remained normal, and there has been complete disappearance of osteoporosis on the roentgenograms. Clinically there is no residual periarticular thickening and no evidence of redundant synovium or effusion. Full extension is present actively and passively, but flexion remains limited to 90 degrees. There is no residual thigh or calf atrophy. There was fine retropatellar crepitation present for the past three years, probably on the basis of chondromalacia of the patella.

CASE 2—In November, 1948, a 5 year-old boy was admitted to a nearby hospital for "lung congestion" following measles. The intracutaneous tuberculin test was positive, and chest roentgenograms revealed a juvenile pulmonary tuberculosis involving the left upper lobe and left hilar lymph nodes. Search for tubercle bacilli in sputum and gastric washings was negative. At the parents' insistence the child was released after a short period of hospitalization and in general felt well except for occasions of slight fever.

A sudden atraumatic onset of effusion of the left knee made its appearance in August, 1948, and was closely followed by pain and stiffness of the knee. In November, 1948, when consultation was sought at the University Hospital, examination of the left knee revealed a typical boggy effusion with limitation of the extremes of flexion and extension of the knee. Fluid aspirated from the left knee produced tubercle bacilli on culture. Chest roentgenograms demonstrated left hilar lymphadenopathy and extensive tuberculous involvement of the left upper lobe unassociated with cavitation.

Immobilization of the left knee was started immediately after aspiration in November, 1948. When the presence of tubercle bacilli was demonstrated, streptomycin therapy was instituted. A total of 60 gm of streptomycin was given parenterally during the next 30 days in divided daily doses. For the next 82 days 1 gm of dihydrostreptomycin was administered parenterally every 12 hours. After completion of this course of therapy sanitarium care was instituted, and the program consisted of rest and immobilization. Repeat roentgenograms of the knee at three month intervals exhibited osteoporosis, but there was never any evidence of osseocartilaginous erosion. During this time the patient improved generally, with increase in weight, arrest of the pulmonary tuberculosis, and return to normal of the elevated erythrocyte sedimentation rate.

In August, 1950 on his return for orthopedic evaluation, there was no evidence of effusion and periarticular thickening was minimal. Quadriceps atrophy was moderate. Since ankylosis has been the aim of treatment in tuberculous joint involvement, arthrotomy was performed. The joint exhibited no visible abnormality. The synovium was not hyperemic, and there was no evidence of pannus formation. The articular cartilage was smooth and glistening; there was no erosion or fibrillation. Because of the implications of drug therapy in this case, a search for subchondral tubercle formation was carried out. No such foci were found. After subchondral investigation had been made, no other alternative than arthrodesis was left. This operative procedure was performed with great care to avoid damage to the epiphyseal cartilage. Histopathological examination revealed no evidence of tuberculous osseocartilaginous damage or tuberculous synovial reaction. Tissue cultures for specific organisms were negative.

CASE 3—In September, 1945 this woman, then 21 years old, was admitted to the Michigan State Tuberculosis Sanitarium with moderately far advanced reinfection of pulmonary tuberculosis. It was recognized at that time that she had definite tuberculous involvement of the third and fourth lumbar vertebrae, and shortly after institution of sanitarium care she was

placed on a Stryker frame. In November, 1946, a large pelvic abscess was punctured, and posterior colpotomy was productive of 300 cc of purulent material from which tubercle bacilli were cultured. She recovered slowly from the gynecologic procedure and was returned to the sanitarium, where she remained until April, 1948. During this time she remained on a Stryker frame and received general care.

Beginning in April, 1948, the patient noticed swelling of the right knee. Material aspirated from the knee revealed tubercle bacilli on both culture as well as animal inoculation. Streptomycin, 0.5 gm intramuscularly, was given twice daily for three months. It is interesting to note that at the time of the onset of the lesion of the knee, the status of the pulmonary tuberculosis was considered much improved, as was the destructive process in the lumbar vertebrae. The erythrocyte sedimentation rate was normal. In May, 1948, a spinal fusion was performed for the tuberculosis of the vertebrae with an uneventful postoperative course. Immobilization of the right knee was continued for approximately one year. X-ray examinations given every three months failed to disclose evidence of osseous abnormality. In June, 1949, the patient was again studied at the University Hospital. The roentgenograms were again considered normal except for marked diffuse osteoporosis, and it was believed, in view of the excellent response to the streptomycin immobilization program, that knee exercise could cautiously be initiated and weight bearing started. Since that time her course with regard to the synovitis in the right knee has been one of progressive improvement.

In November, 1952, she had no symptoms referable to the chest, back, knee, or pelvis. She had been walking without support, with unrestricted activity, for about two years, and exhibited a full, complete range of active and passive motion. There was approximately $\frac{1}{2}$ in atrophy of the thigh with $\frac{1}{2}$ in atrophy of the right calf. There was no effusion, capsular thickening, or retropatellar crepitation. There was no increased heat or redness about the joint. X-ray examination again failed to reveal any evidence of osseous abnormality, and the osteoporosis previously ascribed to disuse had disappeared. Various roentgenologists have interpreted the present films as entirely normal. The erythrocyte sedimentation rate remains normal.

CASE 4—A 26 year-old student from India complained of a tender swelling along the right side of his neck in February, 1949. There was a history of occasional fever and headaches; there were no pulmonary symptoms. A firm, fixed, 5 by 5 cm supraclavicular mass was excised for diagnostic purposes. Grossly this was an enlarged lymph node from which, on both guinea pig inoculation as well as on culture, *Mycobacterium tuberculosis hominis* were demonstrable. A sinus tract from this operative wound subsequently developed and continued to discharge tubercle bacilli. In June, 1949, the patient noted a mass over the right anterior chest wall superficially located just lateral to the sternum in the region of the second costochondral junction. This mass was 4 cm in diameter and had a boggy consistency. Diagnostic aspiration revealed tubercle bacilli. In addition a swelling in the region of the left pisiform at the flexor carpi ulnaris insertion was found, and from this area tubercle bacilli were recovered. Sanitarium care was instituted, the wrist was immobilized, and he was given dihydrostreptomycin and *p*-aminosalicylic acid (sodium) parenterally. Dihydrostreptomycin was administered in 0.5 gm doses daily for 120 days.

Within four and one half months of treatment the chest and neck sinuses healed. There was never any specific evidence of involvement of the pisiform by a tuberculous process, and it was concluded that the lesion in this area had affected primarily the tendon sheath. After eight months he left the sanitarium against medical advice.

Three weeks later, January, 1951, the patient reappeared at the University Hospital with complaints of pain, swelling, and limitation of motion in the right knee, which had been present for three days. (It is interesting to note that the joint roentgenographic surveys made in June, 1949, revealed no evidence of involvement of either knee.) Similarly x-ray examination of the right knee at this time failed to demonstrate any osseous abnormality. Typical cultures of *Myco tuberculosis* were

grown from material aspirated from the knee. The extremity was immobilized in plaster, and the man immediately returned to the sanitarium, where he remained until June, 1951. Streptomycin therapy was reinstituted to complete a course of 2 gm daily for a 60 day period. Also, administration of *p* aminosalicylic acid was resumed, as was the general program of bed rest. After four months, immobilization was discontinued, activity of the knee joint was begun, and there was no evidence of effusion or of periarticular thickening. Roentgenograms revealed only the osteoporosis secondary to disuse. Recheck roentgenograms taken 26 months after the appearance of the effusion demonstrated no osteoporosis or erosion. Clinically there is still limitation of flexion at 70 degrees but extension is full. There is approximately $\frac{1}{2}$ in thigh atrophy. There is some periarticular thickening. The sedimentation rate is normal. The patient has gained weight and has no complaints. The other areas of tuberculous involvement mentioned have remained arrested. At examination the left wrist at the present time is normal. The man has had a full college schedule for the past year and a half and is active in intramural athletics.

CASE 5—A 24-year-old white housewife complained of the spontaneous atraumatic start of pain and swelling of the left knee in November, 1949. After a month of increasing symptoms, diagnostic aspiration of the knee was carried out. Tubercle bacilli were recovered from the fluid on culture as well as animal inoculation. Complete system symptom review as well as roentgenograms of the chest and knee and the sedimentation rate were normal. Intracutaneous tuberculin tests in various dilutions to 1:1,000 were positive. Repeat sputum analyses and gastric washings did not disclose tubercle bacilli. The leg was immobilized in plaster, and, because the facilities were ideal, she was returned home on a program of bed rest and dihydrostreptomycin, 1 gm intramuscularly daily, plus 9 gm of *p* aminosalicylic acid (sodium) orally.

On completion of a 90 day streptomycin-*p* aminosalicylic regimen, she returned to the hospital. Clinically the knee revealed no evidence of effusion but there was minimal synovial thickening. Because of the course exhibited by the cases previously presented, it was believed immobilization could be discontinued. She was started on a program of active knee exercise and graduated weight bearing on the left lower ex-

tremity. Roentgenograms of both chest and knee revealed no abnormalities apart from the osteoporosis.

At present, three years since institution of treatment, she is carrying on full activity as a housewife, limited in the last 10 degrees of flexion, but other than this clinical and x-ray examination show a normal knee.

SUMMARY AND CONCLUSIONS

Five cases of synovial tuberculosis of the knee proved by demonstration of tubercle bacilli from aspirated joint fluid are presented. All patients were treated with streptomycin and have been followed from nearly three to six years. On a theoretical basis, the local vascular conditions in synovial tuberculosis are favorable for the effective use of streptomycin. Streptomycin exerts a definite beneficial effect on the course of synovial tuberculosis of the knee. In none of these cases presented was osseocartilaginous tuberculosis observed before treatment. Of great significance is the fact that none of the patients have shown x-ray evidence of osseocartilaginous erosion since institution of therapy. In one case in which arthrotomy was performed one year after streptomycin administration there was no gross pathological, bacteriological, or histological evidence of tuberculosis in the synovium, cartilage, or subchondral bone. The implication is that streptomycin may eventuate in obliteration of tuberculous infection within the synovium. Whether this is complete remains to be seen in longer follow-up studies. If eradication is incomplete, it remains further to be seen whether the minute trauma of activity resulting from continued motion will eventuate in exacerbation. Also, the question of exacerbation of the synovial tuberculosis or the perpetuation of the infection through incomplete antimicrobial therapy remains to be answered by observing this as well as similar series for several years.

SIGNIFICANCE OF GRAND MAL SEIZURES DEVELOPING IN PATIENTS OVER THIRTY-FIVE YEARS OF AGE

Louis Berlin, M.D., Mt. Vernon, N.Y.

Convulsions appearing for the first time late in life may presage the appearance of the more obvious manifestations of progressive brain damage by tumors, vascular disease, or degenerative diseases. It has therefore become current teaching that, when seizures develop in adulthood, they are usually expressions of some serious underlying disease with grave prognostic implications.¹ This has led to a justifiable attitude that the appearance of seizures warrants a careful search to detect the structural lesion responsible for the seizures. The frequent failure to discover the etiological agent, however, leaves the physician with a disquieting uncertainty as to whether there still remains some destructive process that his diagnostic methods have failed to uncover.

Owing to lack of space the bibliographic references have been omitted from THE JOURNAL and will be included only in the author's reprints.

Read at the meeting of the New York Neurological Society and Section of Neurology and Psychiatry of New York Academy of Medicine Nov 10 1952.

From the Neurological Section, Bronx Veterans Administration Hospital, Bronx, N.Y., and the Department of Medicine (Neurology), Cornell University Medical College.

The basic studies for the work-up of patients who develop seizures usually consist of a complete neurological examination, spinal tap, x-ray examination of the skull, and electroencephalogram, in addition to the procedures to determine the general physical status. It is relatively simple to decide on additional diagnostic procedures and to estimate the prognosis when the grand mal seizures are associated with abnormalities in the neurological status or general condition. There are adults, however, who manifest no neurological dysfunction other than grand mal seizures and whose simple laboratory studies fail to reveal the cause of the seizures. They pose the question of what structural lesions are responsible for their seizures and whether more than the simple diagnostic procedures are indicated in the investigation of the cause of the seizures. In order to evaluate the diagnostic and prognostic implications of the late onset of seizures and to assess the need for special diagnostic procedures in the absence of other findings, it was decided to review the records of 125 ambulatory men

whose grand mal seizures appeared for the first time at or after 35 years of age. Twelve patients had associated psychomotor seizures.

The age of onset of seizures ranged from 35 to 67 years, and the seizures had been recurring for from 6 months to 29 years (table 1). It is to be observed that

TABLE 1—Years Elapsed After Onset of Seizures Without Neurological Abnormalities

Age at Onset Yr	Duration of Seizures Yr									Total No. of Patients
	—1	2-3	4-5	6-7	8-9	10-14	15-19	20-25	25+	
35-39	18	12	8	8	3	4	6	4	1	69
40-44	8	3	3	3	2	3	3			25
45-49	3	6	2	2	3	2		1		19
50-54	1	5	1	1	1	2				11
55-59	3	1	1			1				6
60-64	1	1		1						3
65+		2								2
Total	29	30	15	16	9	12	9	5	1	125

66 out of 125, or 53%, were observed for four or more years after the onset without the progressive development of signs of focal neurological damage. In three patients reversible focal neurological signs did develop during the course of their illness, but these signs were probably unrelated to the process that caused the seizures. In one patient, whose seizures started at the age of 40, hemiparesis followed apoplexy 14 years later, when he was 54. Another patient had transient hemiparesis following a head injury at the age of 52, three years after the onset of seizures. In a third patient facial palsy developed following a head injury at the age of 55, 18 years after the onset of the seizures.

Pneumoencephalography is often advocated as part of the examination of a patient with the late onset of seizures in the effort to detect a brain tumor. Fifty-four patients had pneumoencephalograms, three had ventriculograms, and one had an arteriogram from 6 months to 15 years after the onset of seizures (table 2). There were four clearly abnormal pneumoencephalograms. One patient had a cyst in the region of the body of the right lateral ventricle and another had a diffusely dilated ventricular system, both apparently resulting from severe closed head injuries sustained over 10 years before the pneumoencephalogram was made. Neither patient showed any disturbance of function other than seizures. One patient, who had been having severe uncontrolled seizures for 10 years, had a widely dilated ventricular system. That was the only patient with both impaired mental function and pneumoencephalographic abnormalities. In the three ventriculograms made, the only abnormality, a dilated lateral ventricle, was found in the patient in whom the left hemiparesis developed at the age of 54, 14 years after the onset of seizures. The one arteriogram was normal. Hence in patients with normal neurological status, normal spinal fluid, and normal results of x-ray examination of the skull, not one tumor was detected by encephalography.

It is well known that a normal pneumoencephalogram does not preclude the presence of a tumor. Twenty-nine cases of brain tumors with normal encephalograms and/or arteriograms have been reported.⁸ In this group, there were 15 patients with seizures. Fourteen out of the 15 patients with seizures had had Jacksonian seizures alone or in combination with grand mal seizures. They also

had some other clinical, spinal fluid, or x-ray indication of a destructive lesion of the brain. Only one patient had grand mal seizures without other evidence of focal abnormality, and in that patient aphasia and hemiparesis developed 10 months after the onset of seizures.

It has been repeatedly asserted that tumors are the commonest cause of seizures in this age group.^{1a} It has been estimated that from 29 to 45% of patients with brain tumors have seizures,³ and about 15% have seizures as their initial symptom.⁴ In one series⁵ of 316 cases of brain tumor, of 68 patients with seizures, only 13 had seizures for more than one year without other signs of brain tumor. It is not clear how many had had Jacksonian seizures.

It is not enough to know that seizures occur in brain tumors, instead the type of seizure and the constellation of associated symptoms and findings that would constitute the criteria for the diagnostic consideration of and intensive search for a brain tumor should be defined when the presenting complaint is that of seizures. Therefore in an effort to clarify the relationship of the seizures to brain tumor, I reviewed my own series of 81 supratentorial primary and metastatic tumors, 2 abscesses and 1 tuberculoma, all confirmed at operation or autopsy. In these cases, 39 patients or 46% had seizures prior to operation. Twenty-three, or 59% of patients with seizures, had Jacksonian seizures (with or without grand mal attacks), which indicated a focal lesion. Nevertheless, three patients with focal seizures had normal pneumoencephalograms, one, one, and four years, respectively, after the onset of seizures, and one had a normal ventriculogram and arteriogram one year after onset. All four had frontal gliomas. In the presence of a parietal astrocytoma that had caused grand mal seizures for three years and Jacksonian seizures for three months, one arteriogram disclosed no abnormality.

TABLE 2—Number of Years After Onset of Seizures That Pneumoencephalograms or Ventriculograms Were Made

Age at Onset Yr	Years After Onset							Total No. of Patients
	0-1	2-3	4-5	6-7	8-9	10-14	15-19	
35-39	10	10	5	1			1 V †	27
		1*	1*			1*		8*
40-44	5	1		3	1	1		11
		1*					1 V *	2*
45-49	1 V	3	1	1	1	1		9
	1							
50-54		3		1				4
55-59		1						1
Total	17	18	6	6	2	2	1	57
		2*	1*			1*	1*	

* The results of the tests were abnormal in these cases.

† The V indicates that a ventriculogram was made. All other figures indicate the number of pneumoencephalograms.

In this entire series, six patients (7%) had been having grand mal seizures from two to six years without demonstrating additional neurological abnormalities. There were three temporal and two parieto-occipital astrocytomas and one sphenoid ridge meningioma. Four patients had had normal pneumoencephalograms within two years after the onset of the seizures. Although some of these patients with grand mal seizures had electro-

encephalograms indicative of a focal abnormality, this alone could not serve as an indication for surgical intervention in the absence of any other findings but might be an additional warning that careful observation was required

On the basis of these observations it appears that over 85% of patients with seizures due to brain tumors will have either Jacksonian seizures or other evidence of tumor within one year after the onset of the seizures. Furthermore, although a small number of slow-growing brain tumors may cause grand mal seizures for several years before producing any other abnormalities, it seems highly unlikely that pneumoencephalography, ventriculography, or arteriography will reveal the tumor at that early stage in development when all other clinical signs, study of spinal fluid, and x-ray examination of the skull

TABLE 3—Interval Between Onset of Seizures and Psychological Tests

Age at Onset Yr	Years After Onset When Tests Were Made								Total No of Patients
	—1	2-3	4-5	6-7	8-9	10-14	15-19	20-25	
35-39	10	9	2	3			1		25
		2*				1*			2*
40-44	2	5		2	2	1			12
		1*							1*
45-49	2	1	2	2	1			1	9
50-54		1		1	1				3
		1*							1*
55-59		2							2
60 +	1	1							2
Total	15	19	4	8	4	1	1	1	58
		4*				1*			

* Indicates number of patients in whom psychological testing revealed signs of structural cerebral disease

TABLE 4.—Years Elapsed Between Closed Head Injuries and Onset of Seizures

Coma After Injury	Duration of Years Before Onset				
	1-4	5-9	10-14	15-19	20+
1-12 hr	2		2	2	3
Over 12 hr	2	2			1

reveal no abnormalities. From this it appears that only the presence of Jacksonian seizures and progressive neurological deficit substantiated by abnormalities of the spinal fluid and skull roentgenograms justify the intensive search for a brain tumor as part of the investigation of the seizures.

Because of the inference that the onset of grand mal seizures in adult life may also mark the development of some degenerative process, the mental status of these patients was evaluated. A total of 58 patients had a battery of psychological tests consisting of a Wechsler-Bellevue test, Rohrschach test, Bender-Gestalt test, Goldstein-Scheerer form sorting test, and a diagnostic memory scale (table 3). Of this group only five patients showed a significant degree of impaired mental function indicative of structural brain disease, but in no patient was it severe enough to require indefinite hospitalization. In addition, there were four other patients who gave evidence of intellectual impairment as demonstrated by defects of memory, calculations, and abstraction

during the course of the clinical mental status examination. It is of some interest that two of those with mental disturbances were having seizures at least once a week, but the mental status improved as the seizures were brought under control. Hence only 9 patients of 125 may be considered to have manifested some deterioration in their mental status.

All these patients had at least one spinal fluid examination. The only abnormality consisted of increased protein, ranging from 63 to 123 mg per 100 cc in 12 patients. The highest value occurred in one patient who died in status epilepticus without any significant abnormality being found at postmortem examination. The other abnormalities found were also associated with hypertension and minute traumatic softening of the brain.

Electroencephalograms were made for 109 patients. Thirty-five per cent had dysrhythmic records, but this did not materially aid in ascertaining the cause or management of the seizures. This is in accord with other observations⁶ that the late onset of seizures is associated with a low incidence of electroencephalographic abnormalities.

Among the most significant factors contributing to the production of the seizures were closed head injuries, alcoholism, and hypertensive cardiovascular disease. Fourteen patients had had severe closed head injuries without gross sequelae other than epilepsy (table 4). The interval between the time of the injury and the onset of seizures ranged from a few months to 20 years. In this whole group, 20 patients indulged in alcohol in excess prior to development of their seizures. Twelve patients had hypertension and/or coronary artery disease. In 40 patients severe closed head injuries, alcoholism, hypertension, and coronary artery disease, alone or in various combinations, preceded the onset of seizures. If these are factors contributing to the production of seizures, then there still remains a minimum of 84 patients, or 67%, in whom no chronic systemic or neurological disease was discernible as a cause of the seizures.

Five patients died from 2 to 15 years after the onset of the seizures. One patient died at age 50, in status epilepticus, 15 years after onset of the seizures. The brain showed no gross or microscopic lesions other than fresh ventricular needle tracts. Another patient died at age 53 of rheumatic heart disease, 15 years after the onset of seizures. The only abnormality consisted of a cribriform state of the basal ganglions. One death eight years after onset of seizures was attributable to metastatic carcinoma of the thyroid, but the brain showed only multiple small traumatic softening on the surface of the frontal lobes. Another patient died two years after the onset of seizures, of a reticulum cell sarcoma. One year prior to death, results of examination of his spinal fluid, psychological tests, and a pneumoencephalogram had been normal. Shortly before his death, there were 12 "lymphocytes" in the spinal fluid. The brain showed no gross abnormalities, but in the meninges there was a thin layer of large round cells resembling reticulum cell sarcoma that was thought to be of recent origin. In one case in which death was attributable to hypertension and coronary artery disease, there was no examination of the brain.

COMMENT

It has been implied that one of the most important diagnostic considerations in the late onset of grand mal seizures is that of brain tumor, however, only 5% of intracerebral tumors persist for more than one year with grand mal seizures as the only clinical abnormality. Less than 20% of patients with seizures of all types resulting from brain tumors go more than one year without manifesting other clinical signs of tumors. It is recognized that patients with slow-growing brain tumors may have grand mal seizures for many years with no other abnormalities, but in these instances contrast air studies also fail to reveal any abnormality. In such cases vigilant follow-up is necessary to detect the unfolding of further signs of brain tumor.

In evaluating the factors that contribute to the development of grand mal epilepsy under the conditions set here, it was found that 33% of the patients had associated alcoholism, hypertensive cardiovascular disease, and/or severe closed head injuries. Even if to this group is added 15% of patients who have grand mal seizures due to brain tumors without other findings, there still remains over 50% of patients who have no demonstrable cause for the seizures. This coincides with the data of Lennox⁷ who, in a series of 1,676 male patients with "physiologic" epilepsy and 528 with "organic" epilepsy, found 125 cases of "physiologic" epilepsy and 55 cases of "organic" epilepsy with the onset after 35 years of age. It therefore appears that there exists a group of patients who begin to have seizures late in life without any apparent cause. These persons show no abnormalities of the mental, neurological, spinal fluid, or x-ray examinations of the skull. Pneumoencephalographic and ventriculographic studies fail to shed any additional light on a structural lesion under these circumstances. The prognosis for sustained good functioning in these persons is excellent.

Even if the contributing factors of alcoholism, head injury, and hypertensive cardiovascular disease are considered in this group of patients, the favorable prognostic implications of grand mal seizures in the absence of other clinical, spinal fluid, or roentgenographic abnormalities are apparent. Only 9 out of 125 patients showed some degree of intellectual impairment, and out of 66 patients followed for 4 or more years, none had neurological focal signs and only 3 showed evidence of mental difficulties. The current teaching that seizures developing late in life are indicative of some destructive process should be challenged. Although each patient with grand mal convulsions should be carefully investigated to determine the cause of the seizures, when examination of the spinal fluid, x-ray examination of the skull, and the clinical examinations reveal no abnormalities, air studies also fail to reveal any tumor. All these patients should be carefully followed to determine any new findings. A few patients in the group will ultimately reveal the presence of a brain tumor, but when these are excluded it should be recognized that a large proportion of the patients in whom grand mal seizures developed late in life show no destructive process and have a long course without cerebral deterioration. Recognition of this group will

spare these patients the problems of morbid prognostications and excessive or premature investigation by neurosurgical procedures.

SUMMARY AND CONCLUSIONS

The records of 125 ambulatory men who had had grand mal seizures starting at or after 35 years of age were reviewed. The seizures had been recurring for from 6 months to 29 years. These patients had no significant abnormalities in their neurological status, spinal fluid, or roentgenograms of their skull at the onset of the seizures. Fifty-three per cent were observed four or more years after the onset of the seizures without showing evidence of progressive degeneration or destructive lesion of the brain. Only 5 out of 58 patients given psychological tests showed evidence of structural brain disease on these tests. Four other patients showed similar disturbances during the clinical mental status examinations.

Hypertension, severe closed head injuries, and alcoholism contributed to the development of seizures in 32.5% of these patients. No brain tumors were detected in this group, although 53 pneumoencephalograms and 3 ventriculograms were made. They revealed only four atrophic lesions resulting from head injuries, intractable seizures, and one cerebral thrombosis that occurred 14 years after the onset of seizures.

About 85% of patients who have had seizures due to brain tumors have had either Jacksonian seizures or other indications of a focal lesion within one year after onset of the seizures. Less than 10% of brain tumors will cause grand mal seizures for more than one year without abnormalities in the clinical, spinal fluid, or skull roentgenographic examinations. At that stage in the development of a brain tumor when grand mal seizures are the only indication of a tumor, it seems unlikely that the present diagnostic procedures of pneumoencephalography, ventriculography, and arteriography will reveal the tumor. These patients will have to be carefully followed to detect any change in their findings before a space-occupying lesion can be detected. Although patients in whom grand mal seizures develop late in life should be carefully investigated and followed to determine the basis of the seizures, it should be recognized that in at least 50% of patients who have grand mal seizures without other abnormal findings, no destructive lesion of the brain will develop, and they will have a long course without cerebral deterioration.

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Intra-Arterial Transfusion—Experimental data. encouraged us to use intra arterial transfusion clinically for patients in severe shock, and we have now done so on more than 120 occasions at the Kingston General Hospital. The cases included examples of exsanguinating operative and obstetric emergencies, gross traumatic shock in accident victims, severe burns, acute cardiac arrest, and operative shock, e g, that associated with pneumonectomy. In addition, more recently, 2 patients with coronary thrombosis in severe hypotension and shock have been given intra arterial transfusions. Our experience thus far has been entirely satisfactory, indeed, I am prepared to state categorically that intra arterial transfusion is far superior to intravenous transfusion, both in the treatment of established shock and as a preventive measure in operations in which serious and sudden shock may occur—D L C Bingham, M B., Ch B., Shock, *Journal of the International College of Surgeons*, November, 1952.

SELECTION OF A SCREENING PROCEDURE FOR DETECTING OCCULT BLOOD IN FECES

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There have been numerous reports comparing the reliability and sensitivity of the various tests used to detect occult blood in the feces, but there has been relatively little agreement as to which of the tests—guaiac, benzidine, or orthotolidine—has the requisite sensitivity and specificity that would make it the desirable screening procedure for routine use.¹ This lack of agreement is in large part due to the lack of experimental data designed to answer the following question: What is the greatest quantity of blood lost into the upper gastrointestinal tract, either at a single hemorrhage or at a constant daily rate, which would consistently escape detection by these commonly employed tests, even if every stool passed were examined?

TABLE 1—Results of Tests for Occult Blood on the Feces

No. of Subjects	Following Ingestion of Blood			Following Ingestion of Iron, 180 Mg Ferrous Iron Daily
	25 MI	50 MI	100 MI	
Total No. of Stools	80	88	7	120
	87	89	10	248
No. of Stools Giving Guaiac Reactions				
0	61	40	2	230
1+	15	23	2	8
2+	10	15	5	5
3+	0	8	5	0
4+	1	8	2	0
No. of Stools Giving Benzidine Reactions				
0	28	22	2	109
1+	17	14	0	54
2+	15	18	1	16
3+	11	14	3	9
4+	10	27	10	0

The problem of detecting blood lost into the lower colon is not so pressing, since the gross appearance of the stool and the relatively greater concentration of blood per gram of feces make even the least sensitive of these tests adequate for accurate screening. A reliable answer to the question formulated above has an important bearing on several phases of medical theory and practice, such as the early detection of upper gastrointestinal malignancy or the theoretical aspects of the pathogenesis of hypochromic anemia. It would seem that the only reason for doing determinations of occult blood in the feces is to be able to state that there has or has not been bleeding of a certain magnitude into the intestine. It is therefore necessary that a test with well-defined sensitivity be

employed. Furthermore, it is essential that the procedure of the test not require elaborate preparation of the patient and that the reagents employed show as little deterioration and variation as possible during routine use. As screening tests, such procedures should be standardized under conditions prevailing in the physician's office, or in the average hospital clinical laboratory, rather than by highly-trained technicians using the facilities of a research laboratory.

This report attempts to answer the above question, employing the gum guaiac test and the modified Gregersen benzidine test. Since the effect of ingested iron preparations on the specificity of the guaiac reaction (but not of benzidine tests) has long been controversial, the experiments have been so designed that the control group ingested iron salts in addition to an unrestricted diet.

PROCEDURE

For the past three years, second year students at Washington University School of Medicine, during their course in laboratory diagnosis, have cooperated in two types of experiment. All tests were carried out by the students under the supervision of their instructors.

1. One-half of the subjects in each group, while on unrestricted diets, has received various quantities of human blood instilled through gastric tubes or swallowed. The other half of each group has taken an unrestricted diet plus ferrous sulfate or ferrous gluconate in various commercial preparations, at a dosage level providing 180 mg of reduced iron daily, beginning with the first day of stool collection. From the time of ingestion of either blood or iron salts, all stools were saved for the following 64 to 72 hours, with appropriate notation as to gross appearance and time at which defecation occurred. Representative samples of each stool were analyzed by each of the following techniques.

Guaiac Test—A small piece of feces is spread out on filter paper, and two drops each of glacial acetic acid, 95% ethanol solution of gum guaiac, and 3% hydrogen peroxide are added in that order. The color is read at five minutes and is graded as a 0 to 4+ reaction.

Benzidine Test (Gregersen Modification)—A mixture of 0.025 gm of benzidine base and 0.20 gm of barium peroxide, as dry powders, is dissolved in 5 ml of 50% acetic acid. A small piece of feces is spread on a white filter paper, and two drops of the reagent are mixed with it. The result is read at 15 to 30 seconds and graded as a 0 to 4+ reaction. The reaction occasionally may fade rapidly after 30 seconds, turning brown. If benzidine dihydrochloride (0.025 gm) is substituted for the benzidine base, the color produced is much more stable and thus easier to read.

2. Eleven normal subjects ingested daily 15 m³ packed red cells (equivalent to at least 30 ml of h¹ for periods of four to six days. Every stool passed collected and analyzed by each subject with both tests as described.

From the departments of medicine and preventive medicine, Washington University School of Medicine and the Barnes Hospital.

1. (a) Peranio, A. and Bruger, M. The Detection of Occult Blood in Feces Including Observations on the Ingestion of Iron and Whole Blood. *J. Lab. & Clin. Med.* 38:433 (Sept.) 1951. (b) Hoerr, S. O., Bliss, W. R., and Kauffman, J. Clinical Evaluation of Various Tests for Occult Blood in the Feces. *J. A. M. A.* 141:1213 (Dec. 24) 1949. (c) Schiff, L., Stevens, R. J., Shapiro, N., and Goodman, S. Observations on Oral Administration of Citrated Blood in Man. II. Effects on Stools. *Am. J. M. Sc.* 203:409 (March) 1942.

In addition to these two experiments, a third investigation was carried out, in order to compare the Gregersen test using benzidine base against a similar test employing benzidine dihydrochloride. Eighty-one stools from unselected patients hospitalized on the medical and surgical wards were examined by these two tests as well as by the guaiac procedure, all tests being performed by a technician in the routine hospital laboratory under my supervision.

RESULTS

The essential experimental data are recorded in tables 1, 2, and 3, and are self-explanatory. These experimental subjects had no disturbances in bowel function, and from table 1 it may be seen that the average number of stools per subject was similar in the blood-fed and iron-fed groups. Most of the negative tests in the group ingesting blood were due to the fact that the first stool passed had little opportunity for contact with the ingested blood,

homogenization of the stool sample and boiling to destroy peroxidases, was employed. Since the studies of others² have shown conclusively that blood ingested in quantities greater than 100 ml will almost invariably result in strongly positive reactions to both tests, this study has been focused upon the effects of small amounts of "blood loss," namely 25 to 50 ml.

It is apparent from table 1 that a significant number of persons with "blood loss" in the stomach of 50 ml on a single occasion will not be identified if every subsequent stool passed over a 72-hour period is examined by the guaiac technique. These findings are somewhat at variance with reports in the literature, although Peranio and Bruger recently placed the lower limit of detectable loss at 20 ml by this technique.^{1a} With a "blood loss" of 25 ml, a much higher percentage of the stools was negative to the guaiac test. It may, therefore, be stated that the critical level of blood loss for the guaiac test's sensitivity

TABLE 2—Results of Parallel Tests on All Stools of Eleven Subjects During Daily Ingestion of Blood

Reactions Each Day During Which Blood * Was Ingested												Total No of Stools Tested
Subject	1	2		3		4		5		6		
		Benzidine	Guaiac	Benzidine	Guaiac	Benzidine	Guaiac	Benzidine	Guaiac	Benzidine	Guaiac	
1		0	0	0	0	0	0	8+	2+	3+	0	5
2		0	0	3+	1+	3+	1+	3+	1+	3+	0	7
		3+	1+	3+	1+	3+	1+	3+	1+			
3		3+	2+	3+	2+	4+	3+	3+	3+	3+	1+	6
4		0	0	1+	0	3+	1+	3+	1+	2+	0	5
5		3+	2+	3+	2+	3+	2+	3+	0	3+	2+	6
6		3+	1+	4+	1+	4+	1+	4+	1+	3+	1+	5
7		3+	1+	4+	2+	4+	2+	4+	2+	4+	2+	6
8		0	0	0	0	2+	0	4+	1+	4+	0	9
				1+	0	4+	0	3+	1+	1+	0	
9		0	0	0	0	3+	0	3+	0	2+	0	5
10		0	0	0	0	0	0	4+	4+	4+	4+	5
11		3+	0	3+	0	3+	3+	3+	3+	3+	1+	6
Mean		1.5	0.58	1.92	0.69	2.77	1.03	3.33	1.58	2.91	1.0	
Standard Deviation		±1.6	±0.78	±1.61	±0.85	±1.16	±1.12	±0.493	±1.341	±0.86	±1.27	
S E of mean		0.462	0.225	±0.440	±0.236	±0.322	±0.310	±0.143	±0.341	±0.26	±0.38	
t		1.77		4.5		0.08		4.73		0.05		
Probability		0.1		<0.001		<0.001		<0.001		<0.001		

* All subjects ingested daily 15 ml of packed red blood cells daily which is equivalent to 30 ml of whole blood.

from table 2 it would appear that it may take several days for complete admixture of administered blood with the stool. About 67% of the negative benzidine reactions and 45% of the negative guaiac reactions occurred with the first stool passed, this obviously affects seriously the over-all percentages of negative reactions. It was felt, however, that table 2 would serve to clarify this matter more adequately than would arbitrary exclusion of the first stool passed by every subject listed in table 1, since some of the first stools were strongly positive for blood. The hospitalized patients (table 3) were on medical and surgical wards, and no attempt was made to correlate their clinical status with the tests of the stools. Table 3 shows clearly that substituting benzidine dihydrochloride for benzidine base does not alter the sensitivity or specificity of the Gregersen test in any way.

COMMENT

The experiments described were carried out in a deliberate attempt to simulate the actual practice of stool examination among practitioners and laboratory technicians. None of the refinements of technique, such as

lies between 25 and 50 ml, i.e., the test cannot be relied on to detect with consistency single blood losses in the stomach of less than 25 ml.

The benzidine test showed, as expected, fewer negative tests in the stools passed by those ingesting 25 and 50 ml of blood, its use resulted also in a much greater percentage of 3+ and 4+ reactions than was the case with the guaiac test. The critical amount of ingested blood required for the Gregersen test to become positive is usually set at 3 to 5 ml.^{2c}

Since the critical level for the guaiac test seemed to lie between 25 and 50 ml of blood "lost," 11 normal subjects were fed daily 15 ml of packed red cells, equivalent to at least 30 ml of blood, over a period of four to seven days. In table 2 may be seen the complete record of all stools examined. It is apparent that in the majority of cases, the guaiac test failed to give more than a 1+ reaction, and in one subject, every stool passed was

2. (a) Schiff^{1c} (b) Leiboff S. L. Detection of Blood by Means of Benzidine Dihydrochloride. *J. Lab. & Clin. Med.* 14: 1187 (Sept.) 1929. (c) Brankamp R. G. Benzidine Reaction. Some Observations Relating to its Clinical Application. *Ibid.* 14: 1087 (Aug.) 1929.

guaiac-negative, whereas the benzidine test gave 3 or 4 + reactions in at least two stools for each subject. Statistical analysis of the results obtained with the two tests on the same stools reveals clearly (a) the superior sensitivity of the Gregersen benzidine test, and (b) the smaller variance of the results of this test as compared with those of the guaiac test. The statistical significance of the advantages of the benzidine test over the guaiac test increases with each successive day of the experiment, becoming relatively constant after the third day of the experiment. The stability of the results after the third day emphasizes once again the danger of drawing conclusions on tests of stools for the presence or absence of ingested materials unless the experimental conditions have been in operation for at least three days. Studies of steatorrhea have led to this same conclusion.³ It is obvious that a single random stool sample from any of these subjects, "losing" blood slowly but regularly into the upper intestine, might give a negative test for blood by either method, but this possibility is much greater with the guaiac test than with the Gregersen benzidine reaction, and the probability that two or more such successive stools would be negative to the benzidine test is very low.

TABLE 3—Comparative Readings of Three Tests on Stools of Hospitalized Patients

No. of Stools	Gregersen Test with Benzidine Base	Gregersen Test with Benzidine Hydrochloride	Guaiac Test
46	0	0	0
20	1+	1+	0
6	2+	2+	0
1	2+	2+	1+
3	3+	3+	1+
2	3+	3+	2+
Total = 81			

Is this significant blood loss? A total of 20 ml per day for a month is 600 ml of blood, 30 ml per day is 900 ml per month. It has been adequately demonstrated that the suggested human daily requirement for iron, 15 mg, is not so easy to obtain from food as was formerly thought, in studies with radioiron in normal subjects Moore and Dubach⁴ found that only 10% of food iron is probably absorbed. If, then, there is added to the difficulty of assuring adequate iron intake the difficulty of demonstrating "minor" blood loss in the feces by the commonly used guaiac test, it becomes very difficult to defend the concept of "idiopathic" hypochromic anemia, when based solely on negative guaiac reactions, even on repeated stool samples.

It has been claimed⁵ that the benzidine test is too sensitive for ordinary use, giving many false positive reactions in subjects on ordinary diets. The sensitivity of the test seems to depend very specifically on proportions

between the benzidine and sources of peroxide, as well as on the type of peroxide used, as Leiboff has shown.^{2b} The modified Gregersen test used here has achieved a satisfactory adjustment of these factors. If one considers the subjects taking large doses of iron, plus meat-containing diets, as controls, one observes that of 248 stools examined, 68% were negative, 22% were 1+, 6% were 2+, and 4% were 3+. In other words, 10% of these control stools (passed by 6% of the control subjects) showed benzidine reactions of 2+ or 3+. With the guaiac test the comparable figure is 2%. It might be maintained that this is too high a percentage of false positive reactions. A screening procedure must be made sensitive enough so that no falsely negative reactions occur, and there is simply no way in which this can be accomplished without a certain accompanying percentage of falsely positive reactions. Benzidine does not give a reaction with iron, but occasionally may be weakly positive when the diet contains very large amounts of meat, especially liver, boiling a small fecal specimen for two to three minutes has been suggested^{2b} as a method of eliminating false positive reactions due to peroxidases, which conceivably are the most frequent source of error. In my opinion, the percentage of false positive reactions to the Gregersen test is not impressive, a reaction at the 2+ level of sensitivity indicates that blood loss is probably occurring and that repeated stool analyses are needed, these should be performed on a boiled aqueous suspension of feces. In this connection, it should be pointed out that the significant feature of table 3 is that the stools of five patients gave 2+ Gregersen reactions with negative guaiac tests. Based on the experience described above, at least four of these five subjects are losing blood into the gastrointestinal tract, and they would not have been identified by routine use of the guaiac test alone.

In a recent critical analysis of the modified Gregersen benzidine test, Needham and Simpson⁷ point out that the test is simple, well-standardized, free of uncertainty due to the deterioration of hydrogen peroxide, and almost independent of falsely-reacting articles of diet appearing in the stools. These authors used benzidine hydrochloride instead of benzidine base, the color reaction with the dihydrochloride is more stable than with the base, and, as may be seen from table 3, it does not differ appreciably from the base in sensitivity or specificity. The notorious reputation for over-sensitivity enjoyed by the benzidine test, which is still commonly used in this country, does not apply to this modified Gregersen procedure, possessing as it does only one-fifth the sensitivity of the unmodified test employing benzidine base and hydrogen peroxide. According to these authors, two important factors influencing the results of experiments of this type are (1) the dilution of blood lost into the intestine by the volume of feces passed, and (2) the undoubted fact that some blood lost in this way is absorbed in passing through the small bowel. With regard to the first factor, very large stools, which might dilute admixed blood, are rarely encountered in patients with gastrointestinal bleeding unless they are obviously bloody or tarry. In the experiments reported here no obvious changes in stool volumes were noted. The second factor

3 Black D A K, Bound J P and Fourman L R P. Fat Absorption in Tropical Sprue. *Quart. J. Med.* 16: 99 (July) 1947.

4 Moore C V and Dubach R. Observations on the Absorption of Iron from Foods Tagged with Radioiron. *Tr. A. Am. Physicians* 64: 245 1951.

5 Hoerr^{2b}. A Syllabus of Laboratory Examinations in Clinical Diagnosis. Critical Evaluation of Laboratory Procedures in Study of Patient, Ham T H, editor. Cambridge: Harvard University Press 1950 pp 304-307.

6 Deleted on proof.

7 Needham C D and Simpson R G. The Benzidine Test for Occult Blood in Faeces. *Quart. J. Med.* 21: 123 (April) 1952.

bears some relation to the first, since a smaller stool represents a slighter degree of dilution of the blood lost, but because of normal or delayed intestinal motility, some of the blood in the lumen may be absorbed in passing caudad. In an interesting study, Andrews and Oliver-Gonzalez⁸ found that 15% to 70% of small amounts of ingested blood could not be accounted for in the feces. Since the studies reported here contain parallel analyses of the same fecal specimen by both tests, the two factors above described should affect these results equally.

In conclusion, it appears that the Gregersen modification of the benzidine test, at the 2 + level of sensitivity, performed as described here, is a far more adequate screening test than is the guaiac procedure for the purpose of detecting occult blood in the feces. Based on these studies, the guaiac test will regularly fail to detect 25 ml of blood loss into the upper gastrointestinal tract, and will often fail to indicate losses of 50 ml. Even daily losses of 30 ml of blood may not be detected by the guaiac test performed on every stool sample for five to six days. These data make quite understandable recent expressions of dissatisfaction with the ability of this test to detect occult bleeding presumed to be associated with proved gastrointestinal malignant lesions.⁹ False positive reactions do not present a serious problem with the benzidine test as herein performed.

SUMMARY AND CONCLUSION

1 After one ingestion of 25 ml of blood by 39 subjects, negative or 1 + guaiac reactions were recorded in 87% of 87 stools collected over the subsequent 72 hour

period. Negative or 1 + benzidine reactions (Gregersen technique) were recorded in 50% of these same 87 stools.

2 After a single ingestion of 50 ml of blood by 39 subjects, negative or 1 + guaiac reactions were recorded in 70% of 89 stools collected over the subsequent 72 hour period. Negative or 1 + benzidine reactions were recorded in 40% of these same 89 stools.

3 Of 248 stools passed by 120 subjects while taking ferrous iron, 180 mg daily, plus a meat-containing diet, 10% (from 6% of subjects) gave benzidine reactions greater than 1 +, 2% gave guaiac reactions greater than 1 +.

4 When 11 normal subjects ingested 15 ml of packed cells (equivalent to at least 30 ml of blood) daily for five to six days, the stools of no one subject failed to show benzidine reactions greater than 1 + on two or more days. The stools of four subjects failed to show guaiac reactions greater than 1 +, and one subject passed five daily stools that were guaiac negative. The difference between the benzidine reactions and the guaiac reactions is statistically highly significant. The Gregersen modification of the benzidine test, in which benzidine dihydrochloride and barium peroxide are used, possesses marked advantages over the guaiac test as a screening procedure for detecting occult blood in the feces.

Euclid Ave and Kingshighway (10)

8 Andrews J S and Oliver-Gonzalez, J. Quantitative Determination of Blood in Human Feces. *J Lab & Clin Med* 27: 1212 (June) 1942.

9 Mason E W and Belfus F H. Detection of Occult Blood as a Routine Office Procedure. *J A M A* 149: 1526 (Aug 3) 1952.

USE OF HYPNOTICS IN AGING AND SENILE PATIENTS

A CLINICAL STUDY OF DORMISON

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Aging and senile patients often do not sleep well at night, a therapeutic problem for the physician. This insomnia may be the result of a natural diminution in sleep requirement, a part of the natural process of aging. It may, on the other hand, be a symptom of various psychiatric disorders, or it may be the result of physical disease, such as dyspnea or cough from cardiac failure or pulmonary disease, pain from duodenal ulcer, osteoarthritis, or nocturnal muscular cramps, or nocturia associated with prostatic disease or urinary tract infection. These patients not only may sleep poorly but, as the darkness and relative quiet of the night reduces their contact with and appreciation of their surroundings, may become agitated and confused, a process accentuated by the diminished cerebral oxygenation and metabolism associated with rest in the recumbent position. To reassure themselves of their surroundings, they may wander around in search of familiar objects and indulge in ceaseless rummaging through drawers and closets or in other confused activity. When there is severe loss of contact, delusions, illusions, and hallucinations may

appear. The patient may prowl the house in search of robbers or imaginary enemies, or there may be shouting, screaming, cursing, or outbursts of violence. Patients who are in good contact with their surroundings by day may be unmanageable at night, and if the patient is actually confused, deluded, or hallucinated during the day, he is usually worse at night. Disturbances are especially liable to occur when the patient is removed from familiar surroundings, when visiting away from home or on first admission to a hospital or a convalescent home. "Catnapping" during the day may be sufficient to compensate for sleep lost during the night, but sometimes the patient may wear himself out or come to serious harm as a result of occurrences such as accidental falls or the injudicious lighting of fires or gas jets.

The primary treatment of insomnia in the aging person is the treatment of the primary cause or at least the palli-

The Dormison used in this study was supplied by the Schering Corporation, Bloomfield, N J.

From the Colorado Psychopathic Hospital and the Department of Psychiatry, University of Colorado School of Medicine, Denver.

ation of aggravating factors, if possible, without recourse to the use of hypnotic drugs. The treatment of insomnia due to duodenal ulcer, heart failure, or nocturia from prostatic hypertrophy should be the proper medical management of the disease, not a large dose of a hypnotic. Even if the primary cause of the insomnia is irremediable, simple symptomatic relief measures, such as use of mild analgesics for the relief of the pain of osteoarthritis or antitussive agents for relief of chronic cough, may prove effective.

When the patient has obvious physical disease that keeps him awake and is not obviously psychotic, the proper treatment is clear, but even if the patient is obviously psychotic and there is no obvious physical disorder, thorough physical examination and appropriate treatment are essential. It is often forgotten that senile and arteriosclerotic patients, because of their diminished reserve, are apt to have toxic, delirious reactions with severe insomnia as a result of disease processes, infections, or toxemias that would not affect an ordinary person. Attention to proper hydration and nutrition, correction of vitamin deficiencies, and the treatment of infections (cellulitis, low grade bronchopneumonia, and renal tract infection are common offenders) are most important.

In patients in whom there is no treatable physical illness, conservative treatment is safest. A warm, but not too hot, bath before retiring may produce sufficient relaxation so that use of hypnotics may be avoided, and in some cases rolling himself up in a cocoon of blankets in bed may have a similar effect on the patient. In a hospital, formal hydrotherapy may be used. Nocturnal disturbances may sometimes be avoided by leaving a light on in the patient's room during the night.

Use of hypnotic drugs should be avoided as much as possible, since there is more danger of toxic reaction in older persons. This is the opinion of various workers, as shown by the following statements: "It is the general impression of most workers in the field that toxic states are produced more easily in people of advanced years."¹ "Barbiturate dosage should be considerably reduced for senile patients because they frequently become mentally confused on these drugs. Barbiturates often behave abnormally in the aged, either depressing the respirations more than usually or excessively exciting or depressing the higher centers."² "The happiest solution for insomnia in the aged is for the aged individual to find something to do—read, play solitaire, etc.—while the younger mem-

bers of the family are getting their needed sleep. Certainly one should be very chary of employing hypnotics in these oldsters for they sometimes react in a very excited manner to these drugs—the bromides and barbiturates seem to be the worst offenders in this respect."³ "recovery from symptoms of chronic barbiturate poisoning may be incomplete in elderly debilitated individuals. Bromides should be used with great care, if at all, in patients with advanced arteriosclerosis."⁴ "Chloral hydrate has to be used with caution in the debilitated and old."⁵ Lundy and Osterberg,⁶ in their review of the literature on the barbiturates, point out the decreased tolerance of those of advanced age for barbiturates and state that, since toxic effects may occur with therapeutic doses, they should be administered with caution, especially if the elderly person has pulmonary or renal disease. Even the use of alcohol, often lauded as a safe hypnotic, is accompanied by dangers. "Pathological intoxication is not infrequently seen in the senile."⁷

Potential dangers are associated with any therapeutic agent. Their mere existence should not be a deterrent to using a drug when necessary, provided the hazards are clearly recognized. It may be said with some degree of truth that a drug is as safe as the physician who uses it. Hypnotic drugs may and should be used in aging and senile persons in certain definite situations, when the conservative measures mentioned prove insufficient. They should be used only under strict medical supervision, with careful observation for warning signs of toxicity and with strict attention to maintenance of adequate fluid intake and nutritional and electrolyte balance.

When a patient is disturbed in his behavior or is dangerous to himself or others at night only, judicious use of an hypnotic may make possible use of a convalescent home, when it would otherwise be necessary to arrange permanent institutionalization in a hospital or mental hospital. In hospital practice, hypnotics may be useful in patients whose insomnia is leading to exhaustion or whose nocturnal behavior is grossly disturbing to other patients.

It must be recognized that there is no such thing as an absolutely safe hypnotic. According to Gunn, "It is idle to expect that a drug which has sufficient pharmacological activity adequately to depress the brain will not fail in larger doses to spread its actions. The history especially of hypnotics reveals a procession of drugs which have been introduced—with the claims that they are 'therapeutically active' but 'non-toxic' and not a single example has entirely lived up to this twofold recommendation."⁸ The best that can be done is to select a short-acting drug that is readily metabolized, that has a wide margin of safety between the therapeutic and toxic doses, and that has a relative freedom from lack of side-effects. Paraldehyde is generally and justifiably regarded as the safest hypnotic for elderly persons, its vile taste and the repellent smell that lingers on the breath for 24 hours or longer after a single dose are the main drawbacks to its use. The persistent odor on the breath tends to create a false sense of security by producing the false impression that paraldehyde is excreted by the lungs, when actually about 80% is detoxified by the liver. Recently, we have studied the use of a new type of hypnotic, Dormison,

1 Strecker E A, Ebaugh F G and Ewalt J R. *Practical Clinical Psychiatry* ed 7 Philadelphia: The Blakiston Company 1951 p 145

2 Beckman H. *Pharmacology in Clinical Practice* Philadelphia: W B Saunders Company 1952 pp 84 and 435

3 Beckman H. *Treatment in General Practice* ed 6 Philadelphia: W B Saunders Company 1948 p 877

4 Goodman L and Gilman A. *The Pharmacological Basis of Therapeutics: A Textbook of Pharmacology, Toxicology and Therapeutics for Physicians and Medical Students* New York: The Macmillan Company 1948 pp 144 and 164

5 McGowan P K. In discussion on Willcox W. *The Uses and Dangers of Hypnotic Drugs Other Than Alkaloids* Proc Roy Soc Med 27: 500 (Feb) 1934

6 Lundy J S and Osterberg A E. *Review of the Literature of the Derivatives of Barbituric Acid* Chemistry Pharmacology Clinical Use Proc Staff Meet Mayo Clin (suppl) 4: 386 1929

7 Lewis N D C. *Psychiatric Resultants of Alcoholism* Alcoholism and Mental Disease Quart J Stud Alcohol 2: 293 (Sept) 1941

8 Gunn J A. In discussion on Willcox W. *The Uses and Dangers of Hypnotic Drugs Other Than Alkaloids* Proc Roy Soc Med 27: 499 (Feb) 1934

which has proved in our experience to be as safe as paraldehyde for older patients but lacks its disagreeable taste and smell

DORMISON

Dormison (3-methyl-1-pentyn-3-ol), unlike other hypnotics in common use, with the exception of paraldehyde, contains only carbon, hydrogen, and oxygen and is not related to the opiates, the barbiturates, or chloral hydrate. It resembles paraldehyde in being a liquid, aliphatic, non-halogen compound with the same number of carbon atoms, but it is otherwise not related to it. Pharmacological studies⁹ show that Dormison has a high margin of safety. The lethal dose in rats (LD 50) is about 80 times the effective dose in man, and respiratory depression is not produced in dogs by doses corresponding to 70 times the effective dose in man. It is short-acting and rapidly metabolized, after intravenous administration in dogs no drug could be detected in the blood after two hours. In acute and chronic toxicity tests, no organic, tissue, or metabolic disturbances due to the drug could be detected, and no undesirable effects were noted. In animals, Dormison has a highly specific hypnotic effect. Even large doses did not produce anesthesia, analgesia, antispasmodic activity, or vasomotor, cardiac, or respiratory depression.

Preliminary clinical reports of the use of Dormison by Margolin and co-workers,⁹ Gangemi,¹⁰ Allen and Krongold,¹¹ and Hirsh and Orsinger¹² have confirmed its efficiency, rapid onset of action, and relative lack of side-effects. Hirsh and Orsinger¹² report that 78% of 195 patients receiving doses of 100 to 500 mg went to sleep within two hours and that 86% of 120 patients slept for five hours or longer. Best results were obtained with doses of 300 to 800 mg. Of those given 500 mg, 93% were asleep in one hour and 97% in two hours, 92% slept five hours or longer. Side-effects were noted in only 8 of 195 patients. 5 complained of hang-over, 2 of nausea, and 1 of a bad taste in the mouth. Cumulative toxic effects, drowsiness, ataxia, and dizziness, were reported only when the drug was used as a sedative, not when used as an hypnotic only.¹⁰ None of these reports has dealt with the use of the drug in elderly persons, except that of Gangemi,¹⁰ who administered it to three patients with cerebral arteriosclerosis, abandoning its use when two became excited after single doses of 250 mg. He noted, however, that the occurrence of excitement may have been coincidental, since these patients had been excited from time to time before they were given Dormison.

METHOD AND MATERIALS

Composition of Test Group—It was apparent from the preliminary reports that short action, low toxicity, relative lack of side-effects, and stupeficient action were potential advantages that might make Dormison extremely useful in aging and senile patients. Accordingly, Dormison was tested as an hypnotic in 52 patients aged 61 or over. All were in a psychiatric hospital during the time of administration of the drug, the majority being in the wards for more seriously disturbed patients, and only five were not psychotic. Seventeen patients were in the age group 61 to 70, 20 were in the group 71 to 80, and 15 were over age 80. The average number of nightly trials was 6.4 for each patient, and the average total dose

was 8.19 gm. The longest trial was that in a 74-year-old patient, who was given 21.25 gm over 26 nightly trials in 29 days. The largest total dose was 33.5 gm given over 12 nightly trials in 12 days to a 65-year-old man with a manic psychosis. The oldest patient was a 90-year-old man, who was given 14.75 gm in 13 nightly trials over 13 days. The dose range tested was from 0.25 to 2.25 gm.

Method of Administration—Dormison is available in 250 mg capsules and as an elixir containing 62.5 mg per cubic centimeter. At present, no form of Dormison is available for parenteral administration, and this study does not include patients who refused to take oral medication. The elixir was used almost exclusively for the following reasons: 1. It is taken more easily than capsules by elderly persons. 2. It permits more flexible variation of dosage. 3. A large dose may be given as easily as a small one, it is impracticable to give large doses of Dormison in capsule form because of the large number of capsules that would have to be taken (e.g., 2 gm equals eight capsules). 4. Psychiatric patients occasionally keep capsules in their mouth and spit them out later. They may even be saved for suicidal attempts. Use of the elixir eliminates these two problems.

Capsules were given to only one patient, an irascible woman who spat out the elixir. Orders were written to allow a repeat dose to be given once during the night, if required, but an attempt was made to adjust the dose so that an optimum result would be produced without a second dose. Table 2 includes data on the frequency with which repeat doses were required. A "sleep chart" for the period 9 p.m. to 6 a.m. was kept for all patients. A nurse checked each patient every half hour, and if the patient was awake the corresponding half hour period was blocked in as "awake."

Hypnotic Effect and Efficiency of Dormison—The hypnotic effect of a dose of Dormison was classified as "good" if the patient had six hours' sleep or more after the drug was given. If the drug was given too late in the night to permit six hours' sleep, a duration of five and one-half hours was classified as "good" if the patient went to sleep within an hour and slept without waking until 6 a.m. If the patient was not asleep within two hours, the result was classified as "poor," regardless of the duration of sleep. In estimating the efficiency of an hypnotic drug, not only the optimum result but also the consistency with which this result is achieved must be taken into account. We considered that the drug had been "efficient" if the largest dose given to the patient produced a "good" night's sleep on 80% or more of the nights that it was used.

RESULTS

The main observations from this study are summarized in tables 1 and 2. Since all patients studied had been admitted to the hospital because they had definite psychi-

9. Margolin S, Perlman P L, Villani F, and McGavack T H. A New Class of Hypnotics: Unsaturated Carbinols. *Science* 114:384 (Oct) 1951.

10. Gangemi C R. Pharmacologic and Clinical Data on Dormison. A New Sedative Hypnotic. *Internat Record of Med and G P Clinics* 165:199 (April) 1952.

11. Allen A W, and Krongold D D. Dormison. A New Hypnotic. *Quart Bull Sea View Hosp* 12:61 (April) 1951.

12. Hirsh H L, and Orsinger W H. Methylparfynol—A New Type Hypnotic. Preliminary Report on Its Therapeutic Efficiency and Toxicity, *Am Pract, & Digest Treat*, 3:23 (Jan) 1952.

atric disorders and were unmanageable at home, in a convalescent home, or in a general hospital, it is hardly surprising to find that larger doses of Dormison were required than in the other studies that have been reported, which dealt mainly with younger, undisturbed patients. From graphs in which therapeutic result was plotted against the dose of Dormison, we estimate that a dose of 1 gm will produce an efficient result in 50% of psychotic aged persons and that a dose of 1.5 gm will produce an efficient result in 75%.

TABLE 1—*Relation Between Dose and Effectiveness of Dormison*

Dose Gm	% Trials Showing Good Result *	% Patients Showing Efficient Result *
0.25	0.8	2
0.50	3	4
0.75	22	26
1.00	64	60
1.25	71	68
1.5	79	74
1.75	93	88
2.00	97	94
2.25	100	100

* The figures shown are cumulative i.e., they indicate the percentage of good or efficient results obtained with the dose shown or a smaller one. These figures have been corrected to allow for patients in whom trial with the full dosage range was not possible.

TABLE 2—*Relation of Effectiveness of Dormison to Type of Disorder**

Diagnosis	No. of Patients	Average Dose Required for Efficient Result Gm	% of Patients Showing Efficient Result	Frequency of Need for Repeat Dose †	
				% of Patients	No. of Nights
Cerebral arteriosclerosis with alcoholism (not psychotic)	5	1.00	100		
Cerebral arteriosclerosis with psychotic depressive reaction	2	1.60	100		
Cerebral arteriosclerosis with manic reaction	1	2.25	100		
Other types of psychosis due to cerebral arteriosclerosis or senility (uncomplicated)	87	1.02	70	9	1 in 2.8
Psychosis due to cerebral arteriosclerosis or senility complicated by additional serious illness ‡	7	1.75	29	43	1 in 3.4
Total	62	1.11	69	18.5	1 in 2.5

* The percentages shown have been calculated to two significant figures; their use does not imply that we are unaware of the danger of attaching too much significance to percentages in small groups.

† This column indicates the percentage of patients with the disorder listed who required a repeat dose for optimum results and the frequency with which a repeat dose was required by these patients.

‡ Advanced carcinoma 3, uremia 1, heart failure and pulmonary infarct 1, aplastic anemia 1, and thrombophlebitis 1.

It has been our experience that the dose of Dormison required is related more to the psychiatric state of the patient, to the severity of the behavior disturbance, than to his age per se, for example, depressed and manic patients required larger doses than patients who were either nonpsychotic or who had other types of psychosis. In comparing patients with similar degrees of psychiatric disturbance, it is found that patients aged 80 to 90 require about the same dose as those aged 61 to 70. Our experience with patients below age 60, with the exception of those who are frail and feeble, indicates that there is little difference between young and old psychiatric patients in the amount of Dormison required for a hypnotic effect.

These statements should not be construed as indicating that we advocate the reckless administration of large doses. The physical condition of the aging patient must be evaluated carefully, and, if it is found to be good, a dose in the range of 0.5 to 1 gm should be tried first, no matter how disturbed the patient may be. If this is not adequate, the dose may be increased with safety by 0.25 gm each night or two, until the desired effect is obtained. We did not find it necessary to give more than 2.25 gm to any patient in this study, and we did not find it necessary to give more than 1.75 gm to any patient over 70 years old. Our one 90-year-old patient was given nine doses of 1.25 gm each without ill effect.

It should also be noted that we have been dealing with patients whose illness was so severe as to require admission to a psychiatric hospital. Less disturbed persons will probably require smaller doses for an hypnotic effect. In patients who are seriously physically ill, poor results must be expected with Dormison, as with any other hypnotic drug. This serves to emphasize the fact mentioned previously that the only really effective treatment of insomnia associated with physical disease is the proper treatment of that disease.

Toxic effects were relatively rare and were confined largely to patients with serious physical disorders. One patient vomited two doses of the elixir. This was a 65-year-old man with intractable pain from terminal multiple myeloma, for which he was receiving large doses of meperidine (Demerol), who vomited spontaneously on several occasions. One patient, a severely disturbed 67-year-old man with delirium associated with chronic pemphigus and metastatic carcinoma, tolerated single doses of 2 gm satisfactorily but was objectively drowsy on the morning after it had been necessary to give two doses of 2 gm to produce a good night's sleep. On the next night he was given paraldehyde, two doses of 8 cc were necessary to produce a good night's sleep, and there was the same degree of drowsiness the next morning as had resulted from Dormison. Only two patients (3.8%) complained of the taste of the elixir, one 87-year-old man said that it burned his throat, but he continued to take it, and one 78-year-old woman spat out the elixir but tolerated the capsules. We subsequently learned that the taste of the elixir may be disguised satisfactorily by mixing it with fruit juice.

The experience of this study would suggest that Dormison is a reliable and relatively safe hypnotic for aging and senile persons. It appears to have about the same margin of safety as paraldehyde, without the disadvantages of a vile taste and persistent smell, so that it may be regarded as probably the hypnotic of choice for this group of patients.

SUMMARY AND CONCLUSIONS

Hypnotics should be given to aging and senile patients only when conservative measures and the treatment of physical illness have failed to relieve insomnia and then only if certain definite indications exist. The patients must be carefully observed for signs of possible toxicity. Poor results may be expected in patients with complicating physical disorders. Despite the fact that the dose

of hypnotic required is related more to the degree of psychiatric disturbance and to the general physical condition of the patient than to his age per se, a relatively small dose should be tried at first, regardless of the degree of behavior disturbance. When an hypnotic is

required, Dormison may be regarded as probably the hypnotic drug of choice, it has a margin of safety comparable to that of paraldehyde without the vile taste and persistent smell of the latter drug.

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ANESTHESIOLOGY AS AN AID TO OTHER FIELDS OF MEDICAL PRACTICE

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The term anesthesiology began to be used commonly about 1937 to designate a special field of medical practice that included many activities ordinarily not considered in the realm of anesthesia, the specialist in this new field was termed an "anesthesiologist," rather than an "anesthetist." The anesthesiologist's primary concern, of course, is his work in the operating room, however, he can widen his field by assisting in the management of conditions other than those directly associated with surgical anesthesia. The anesthesiologist of the future must be better informed about many conditions, both common and uncommon, than he has been in the past. As an example, the anesthesiologist must be familiar with the effects of administration of cortisone and corticotropin (ACTH). Since prolonged administration of cortisone may result in atrophy of the adrenal cortex and render it depressed or nonfunctioning, patients who have been receiving cortisone must not be subjected to the stress of anesthesia and surgery until they have been properly prepared. Preparation consists of intramuscular administration of cortisone in daily doses for an adult of about 100 mg for two or three days before surgery and on the day of operation. Administration of this amount is continued for two or three days after operation, the dose is then reduced gradually to the maintenance level.

In view of the dangers inherent in the use of cortisone and corticotropin,¹ the anesthesiologist, as well as the surgeon and internist, must be informed about these hormones. He must be prepared to give adrenocortical extract to the patient during operation if necessary. For this purpose, it is hoped that a preparation of hydrocortisone suitable for intravenous use will be available in the future. The anesthesiologist must be able to recognize the atypical picture of shock that occurs under such conditions and be cognizant of the lack of response to ordinary measures in the treatment of such shock. He should obtain detailed information from either the patient or his relatives about any previous cortisone or similar hormonal treatment that the patient may have received. For various reasons the surgical team is not always informed when a patient has received cortisone. All efforts should be made to avoid this situation.

If the anesthesiologist wishes to be as helpful as possible in alleviation of pain, he must investigate the various analgesic drugs and their doses, indications, contraindications, and antidotes, for example, in cases of attempted suicide from an overdose of morphine, the antidote N-allylnormorphine should be administered. Stimulants, supportive therapy (such as use of oxygen), and sometimes artificial respiration, are required to counteract the effects of overdoses of the barbiturates, in such cases the

anesthesiologist can be extremely helpful. He may also be useful when resuscitative measures are required, as in the newborn. Use of the laryngoscope naturally leads to use of a bronchoscope or use of a long woven-silk catheter for aspiration of material in the air passages. Ability to perform such procedures permits the anesthesiologist to be of real value in emergencies when the services of a bronchoscopist cannot be obtained or when there is no bronchoscopist at all. The anesthesiologist's ministrations may be lifesaving to patients who have become extremely anoxic from an overdose of an anesthetic agent or from respiratory obstruction. Such patients may become decerebrate and will either die or become mentally incapacitated if prompt and adequate treatment is not given. These patients have responded well to use of concentrated serum albumin,² but this material is expensive. The use of a 20% salt-free solution of dextran accomplishes about the same results at approximately one-tenth of the cost of the serum albumin.

The anesthesiologist can perform diagnostic and therapeutic nerve blocks when pathways of pain must be determined so that treatment, either surgical or nonsurgical, can be decided on. The accuracy of the injection should be proved by roentgenograms showing the location of the points of the needles. The solutions used for such blocks are not always adequate. Local anesthetic solutions usually give too few hours of anesthesia to allow positive conclusion that the pathway of pain has been blocked. Blocks by means of absolute alcohol or 6% solution of phenol in water have been associated with occasional difficulty. Use of a solution containing 0.75% each of ammonium sulfate and of benzyl alcohol, has not been uniformly successful, and stronger solutions have been tried. I have had varied experience with a solution called PAB₂, which contains 0.5% procaine hydrochloride, 2.5% ammonium sulfate, and 2% benzyl alcohol, in some cases the solution has been altered to contain 1% or more of procaine. The use of this material has not been followed by untoward results, and the period of relief from pain, in some cases, has been as long as two

From the Section of Anesthesiology and Intravenous Therapy, Mayo Clinic.

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2. Seldon T. H. Faulconer A. Jr. Courtin R. F. and Pino D. M. Postanesthetic Encephalopathy: The Postulation of Cerebral Edema as a Basis for Rational Treatment. Proc. Staff Meet. Mayo Clin. 24: 370-374 (July 6) 1949.

to three months. In most instances, relief lasts at least several days, so that definite information can be obtained regarding the pathway of pain, provided roentgenograms have been made to check the accuracy of the needle's position.

The anesthesiologist is, of course, familiar with transfusion with blood and plasma. The commonly used solutions such as 5% dextrose in isotonic solution of sodium chloride and 5% dextrose in water and the various expanders of plasma volume, such as dextran, polyvinylpyrrolidone, gelatin, and more recently, modified human globin, are materials that the anesthesiologist knows about and is prepared to use. Various techniques, such as the use of 10% salt-free solution of dextran in dehydration of patients who have nephrosis, are being evaluated.³ Use of such a solution seems indicated even if its success is questionable. If little response has been obtained after a week of daily treatment, continuation probably is futile. On the other hand, if the patient does respond quickly the treatment should be continued until the patient is in a relatively satisfactory condition. Throughout the entire period, however, all accepted methods of treatment should be utilized in addition to use of dextran.

The anesthesiologist has an important role in the improvement of immediate postanesthetic care. Such care requires use of an adequate room, in or close to the surgical suite, where patients can be cared for by a specially trained group and where the anesthesiologist or the surgeon or both may see the patient at intervals without absenting themselves from the area of the operating rooms. These facilities probably will become standard hospital

equipment. Certainly the institutions that now use such rooms would not consider their elimination.

I have mentioned just a few of the activities that fall naturally in the field of the anesthesiologist and that allow him to make a broad contribution in the hospital or community. It is not my intention to indicate that the anesthesiologist wishes to intrude in fields where he is not needed, but I would suggest that if he is encouraged to investigate other activities it will be apparent shortly whether he is helpful. The amount of time an anesthesiologist can give to activities outside the operating room becomes evident after a trial. The real reason for his specialization is to aid in surgical technique, whether the operation is a simple dental procedure or an intricate operation in another special field.

The caliber of the surgical team can be raised or lowered considerably by the quality of the anesthesiologist's work. So many agents and methods are at the disposal of the modern anesthesiologist that he should be able to anesthetize almost anyone for any sort of an operation with relative safety. The risk of anesthesia to the patient has been lessened, regardless of the type of disease necessitating operation or the presence of other diseases or complicating factors. The decreased risk applies also to a consideration of how much anesthesia can be used without causing hazard of fire or explosion. In my experience anesthesiologists today have reached a point where they can do a better all-around job than ever before.

3 Olive J T Jr, Mills S D and Lundy J S. Dextran for Nephrotic Edema. Clinical Experience, Proc Staff Meet. Mayo Clin 28: 199-204 (April 8) 1953.

CORTICOTROPIN AND CORTISONE IN INTRACTABLE ANOGENITAL PRURITUS

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Since the introduction of corticotropin (ACTH) and cortisone into clinical medicine¹ and surgery,² I have observed several patients with refractory anal pruritus who have responded dramatically well to one³ or both of these hormones and others who have failed to be relieved appreciably. In the successful cases, the pruritus invariably recurred after variable periods of time following the discontinuation of therapy. As a result of these observations, I instituted a formal study to evaluate this new therapeutic measure. As a background for this study, my personal experience with the management of recalcitrant anogenital pruritus was utilized.⁴ Treatment during the past decade of more than 200 patients

with refractory, long-standing anogenital pruritus by tattooing of the involved skin with mercury sulfide has led to the classification of these patients according to their therapeutic response. Patients without cutaneous involvement were never benefited by tattooing, those with dry, tense pruritic skin formed the unpredictable group, whereas those with moist lichenified skin always responded well to this form of therapy. The cutaneous involvement invariably appears in one of two forms: (1) a thickened, shiny, usually red, and tense but dry skin, and (2) a moist skin with greyish-pale hyperpigmentation, fissuring, and excoriation.

METHOD AND MATERIALS

Corticotropin (Acthar) gel (more recently the highly purified hormone has been used), hydrocortisone acetate, and cortisone acetate were used in variable dosages. The most recent dosage of corticotropin gel employed consisted of 80 units administered intramuscularly in two divided doses the first day and 40 units daily thereafter for 7 to 14 days. Except for two patients in group 1, all were ambulatory. In some cases, a daily maintenance dose of 20 units of corticotropin was administered for an additional week, or cortisone in doses up to 50 mg daily was given for several weeks for maintenance.

The corticotropin used in this study was supplied by Dr. R. I. Feldman and Dr. R. J. Meyer, the Armour Laboratories, Chicago; the hydrocortisone acetate was supplied by Dr. E. Alpert, Merck & Company, Inc., Rahway, N. J., and the cortisone acetate was supplied by Dr. N. L. Hemmings, Schering Corporation, Bloomfield, N. J.

1. Proceedings of the First Clinical ACTH Conference. Mote J. R., editor. Philadelphia: the Blakiston Company, 1950. Hench P. S. and others: The Effect of a Hormone of the Adrenal Cortex (17-hydroxy-11-dehydrocorticosterone Compound E) and of Pituitary Adrenocorticotrophic Hormone on Rheumatoid Arthritis. Preliminary Report. Proc Staff Meet. Mayo Clin 24: 181 (April 13) 1949.

2. Mulholland J. H.: The Physiology of the Adrenal Cortex. S. Clin North America 32: 347 (April) 1952.

3. Fromer J. L. and Cormia F. E.: Adrenocorticotrophic Hormone in Severe Anogenital Pruritus. J. Invest. Dermat. 18: 1 (Jan) 1952.

4. Turell R.: Treatment in Proctology. Baltimore: Williams and Wilkins Company, 1949.

During the early part of this study, 1 gm of potassium chloride was given three times daily by mouth. This medication was later discontinued, because it was found to be unnecessary. Hydrocortisone was injected under the perianal skin in amounts varying from 2 to 5 cc (50 to 125 mg). Cortisone, when employed, was given orally in doses up to 200 mg daily in four divided doses. No other medication was used concomitantly.

Except for one patient with mild diabetes mellitus, all patients receiving the foregoing hormonal therapy were free from symptoms and signs of organic disease, except for the pruritus. In two patients, electrocardiograms and determinations of the serum potassium level were made every third day, results of these tests were normal. The diabetic patient was examined by his referring internist on the fourth day of treatment, no exacerbation of diabetes had occurred. All patients were interrogated daily about the presence of allergic reactions, weakness, fatigue, insomnia, nervousness, and gain in weight.

CLINICAL RESULTS

Group 1 Acute Exacerbations—Three patients with acute exacerbations of chronic, refractory anogenital pruritus were treated. All had a moist type of lichenification of the anoperineovulval skin associated with considerable swelling and numerous recent scratch marks. All were on the verge of mental despondency. One patient received 40 units of corticotropin gel during the first 24 hours and the other two received 40 units every 12 hours during the first day and 40 units daily thereafter for 7 to 12 days. Relief from pruritus was evident within less than 12 hours after the initial injection, with rapid cessation of the itching in the subsequent 36 hours. Within 36 to 48 hours the cutaneous lesion began to "dry up," and most of the superficial fissures and/or excoriations appeared healed within four to six days. Of interest is the recurrence within five days of vulval pruritus in one patient during corticotropin therapy, while at the same time she remained free from anal itching. Cortisone administered orally in a dose of 200 mg daily to one patient for two days appeared less effective than corticotropin gel.

Group 2 Chronic Intractable Anal Pruritus—Seven patients with anal pruritus of from 5 to 20 years' duration, which was associated with moist lichenification and which was refractory to all accepted forms of treatment, except the radical forms, were given corticotropin gel. Three patients received 40 units daily, while four patients received larger amounts. Some relief of pruritus was noted after the administration of the first dose, and increasing relief followed the injection of the second dose. This observation led me to increase the initial dose to 80 units, resulting in somewhat corresponding improvement of the therapeutic response. Cortisone, administered orally in a dose of from 100 to 200 mg daily, did not seem to produce comparable results. In one patient pruritus recurred on the fifth day while she was still receiving this dosage of cortisone.

Since discontinuation of the corticotropin gel therapy, one patient has remained pruritus-free for four months, while recurrence of mild pruritus was discernible in a little more than two weeks in the remaining six patients. Although in two patients the original severity of the

itching was observed only 25 days after withdrawal of the hormone, in four patients the original intensity of the pruritus failed to return, even after a lapse of 14 weeks. All of these patients responded well to retreatment, corticotropin having been employed in four and cortisone in the remaining two.

The pruritus of two patients with "dry," shiny, tense, and thickened perianal skin responded considerably more slowly to corticotropin therapy than the corresponding pruritus in patients with "moist" skin. In these patients, substantial relief of pruritus was noted about three to five days after the institution of corticotropin gel therapy. The skin became less tense and less shiny. Itching returned within one week after withdrawal of the hormone, but these patients responded more quickly to retreatment than to the initial course of therapy. Cortisone therapy was not tried in the patients of this subgroup.

Hydrocortisone, in amounts varying from 2 to 5 cc (50 to 125 mg) was injected under the perianal skin, first in one quadrant and five days later in two quadrants on the opposite side, in two patients with pruritus who had the moist type of perianal skin and who, about one month before, had responded well to corticotropin gel. In each instance, the recurrent pruritus of the injected area disappeared, and the patient remained pruritus-free for two to seven days. Histopathological examination of surgically excised segments of the treated skin of one patient revealed no unusual features.

Group 3 Severe Pruritus Associated with Proctologic Lesions—Patients with moderately advanced lichenification of the perianal skin, associated with redundant skin in two instances, with large, prolapsing internal and external hemorrhoids in two instances, with an anal fistula in one instance, and with anal fissures in two instances, were treated alternately with corticotropin and cortisone for 7 to 10 days. In the patient with the anal fistula and in one with a deep anal ulcer, both drugs were completely ineffective, these lesions had to be treated surgically. In one patient, a superficial fissure healed temporarily when either hormone was given. The epithelial layer healed rapidly, but the subcutaneous tissues did not heal effectively, and thus a "dead space" was formed, the healed epithelium was vulnerable to the slightest defecatory trauma. The patients with redundant perianal skin and those with large, mixed hemorrhoids experienced moderate relief from pruritus as a result of the administration of either corticotropin or cortisone. The relief was not, however, so clear-cut as it was in the patients of group 2, even though the pruritus and the disease status of the perianal skin was more advanced in the latter patients. Retreatment of three patients with corticotropin and cortisone alternately after operation yielded far better results.

Group 4 Refractory Pruritus Without Cutaneous Involvement—Five patients with refractory pruritus without cutaneous involvement failed to respond to either corticotropin gel or cortisone. All of these patients appeared to be neurotic, some of them utilized their itching in the interest of a psychological need, the perpetuation of which seemed to serve an important psychodynamic function.

Group 5 Anal Pruritus Secondary to Ulcerative Colitis or Antibiotic Therapy—Anal pruritus either secondary to or associated with moderately severe ulcerative colitis in one patient responded to corticotropin therapy in direct proportion to the improvement of the ulcerative colonic process.⁵ In two patients, anal pruritus as a manifestation of toxic side-effects of the broad spectrum antibiotics was relieved considerably by either corticotropin or cortisone. It should be remembered, however, that both of these conditions are apt to disappear spontaneously.

Side-Effects—A mild, generalized erythema, especially of the neck and upper part of the chest, and menometrorrhagia were observed in a woman 46 years of age after the administration of a total of 120 units of corticotropin gel. The cutaneous eruption disappeared after oral administration of 8 mg every 12 hours of chlorphenylpyridamine (Chlor-trimeton) maleate, without discontinuation of corticotropin therapy.

COMMENT AND CONCLUSION

Corticotropin, cortisone, and hydrocortisone as the sole treatment for severe anogenital pruritus is useful in the management of patients with acute pruritus belonging to group 1. In these patients it holds in abeyance or reverses the acute pruritic process, thus affording the patient fairly rapid relief and, at the same time, affording the proctologist an opportunity to employ effective and rational measures to control the underlying and precipitating causes of this pernicious type of pruritus. This new method of treatment is equally useful for most patients of group 2. I have observed that patients of group 2 who respond readily to corticotropin or to any of the adrenal corticoids, such as cortisone or hydrocortisone, also respond to tattooing of the involved skin with mercury sulfide for permanent results. In fact, I now employ these hormones as a test preliminary to tattooing; the quick responders appear to be good candidates for this radical therapeutic procedure.⁴ Patients with pruritus but with no associated cutaneous changes do not respond to hormonal therapy, and those with "dry," lichenified skin respond erratically. As already stated, only hormonal therapy was used in the present study, however, other antipruritic therapeutic measures have been employed concomitantly with this form of hormonal therapy by other clinicians.⁶ Since these hormones have a powerful pharmacodynamic effect and since the basic mechanism of their action is still not clarified, they should be employed cautiously.

This study also shows that proctologic lesions associated concomitantly with anal pruritus should be eliminated surgically. In general, a cure cannot be expected from any form of antipruritic therapy unless associated proctologic lesions, regardless of their etiologic importance in pruritus, are extirpated.⁴

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CLINICAL NOTES

HEMIPLEGIA RESULTING FROM PHEOCHROMOCYTOMA

REPORT OF CASE

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and

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Pheochromocytoma can no longer be regarded as a pathological or surgical curiosity, inasmuch as recent reports indicate an increase in the frequency of diagnosis of this tumor. Refinements in laboratory diagnosis and in the management of patients with hypertension of the paroxysmal or sustained type resulting from a chromaffin tumor of the suprarenal gland have progressed significantly in recent years.¹

In 1929, Pincoffs² reported the first case in which a pheochromocytoma was diagnosed and treated successfully. Since then, more than 100 cases of this tumor have been reported in the literature. With the advent of the Roth-Kvale histamine test in 1945,³ impetus was given to the study of this lesion. In 1947, Goldenberg, Snyder, and Aranow⁴ described a different type of diagnostic test, which utilized the adrenolytic drug piperoxan (benzodioxan) hydrochloride. In addition, another adrenolytic agent, Regitine (2-[N-p-tolyl-N-(m-hydroxyphenyl)-aminomethyl]-imidazoline) has been used in the diagnosis of pheochromocytoma, and some authors⁵ believe that it is superior to piperoxan hydrochloride. Calkins, Dana, and Howard⁶ and Calkins and Howard⁷ recently reviewed the various current methods of diagnosis of pheochromocytoma and concluded that the Roth-Kvale histamine test is the most reliable one in the diagnosis of chromaffin adrenal medullary tumors. Recent studies by Kvale and Roth⁸ indicate that the histamine test is most accurate in the diagnosis of pheochromocytoma that causes paroxysmal hypertension.

From the divisions of medicine (Dr. Estes), surgical pathology (Dr. Dockerty), and surgery (Drs. Priestley and ReMine), Mayo Clinic.

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8 Kvale, W. F., and Roth, G. M. Personal communication to the authors.

whereas Regitine produces most reliable results when sustained hypertension exists

Bilateral pheochromocytomas occur in at least 9% of cases⁹ if not more, and a pheochromocytoma may have an ectopic site in 10% of cases. In view of these facts, it is our practice usually to explore transabdominally through an upper transverse incision in order that both suprarenal glands and other portions of the abdomen may be adequately examined. This tumor has been found to be malignant in 11% of cases¹⁰

Difficulty in the diagnosis of pheochromocytoma is caused by the variable clinical manifestations of these tumors. In part, these depend on whether abnormal quantities of pressor agents are present intermittently or constantly in the circulating blood. Hypertension of the sustained type has been reported in 25% of cases, but in our experience this has occurred in 11 (44%) of 25 cases. Patients who have paroxysmal hypertension caused by pheochromocytoma experience periodic attacks, usually of brief duration but occasionally persisting longer. These attacks are characterized by one or more of the following symptoms: anxiety, headache, precordial and epigastric distress, blanching of the extremities, perioral pallor, shortness of breath, tachycardia, palpitation, nausea or vomiting, profuse sweating, and tremor. Pressure over the tumor, hypoglycemia, exertion, and emotional upsets may precipitate the attacks, although most attacks seem to occur spontaneously.

We shall report a case of pheochromocytoma that emphasizes the serious manifestations that this tumor may produce. Particularly, it demonstrates the close cooperation of medical and surgical services that is necessary for the proper treatment of a patient with pheochromocytoma.

REPORT OF A CASE

A white boy, aged 18 who had had progressive hypertension since 1941, first registered at the Mayo Clinic on March 14, 1950. His chief complaints were easy fatigability and profuse sweating of the scalp and face. A diagnosis of rheumatic fever had been made in 1941, and he then had been told that he had hypertension and a "leaking heart." Fever had occurred at that time and had lasted for four months. During this period, his temperature had reached 101 F. Hyperthyroidism also had been considered as a possible diagnosis. During the eight years before the patient came to the clinic, the values for the systolic blood pressure had fluctuated between 160 and 240 mm Hg. The corresponding values for the diastolic pressure were not known. Since 1943, he had carried on relatively normal activities both in school and in helping with his share of farm work. The mother at times had noted profuse sweating over the upper half of his body and a tremor of his hands. No history of edema, dyspnea, orthopnea, or cough could be elicited. After severe exertion, he suffered from weakness and trembling. There was no familial history of hypertension.

The patient was 5 ft 6 in (167.6 cm) tall and he weighed 133 lb (60.3 kg) at the time of his initial examination at the clinic. His face was flushed and he was perspiring. His temperature was 99.2 F. The heart was enlarged, and it extended to the anterior axillary line of the left side. The apical beat was forceful, and auscultation disclosed a loud precordial systolic murmur, which was most intense at the pulmonic area. A thrill was easily palpable at this site. While the patient was lying down, the blood pressure was 190/120 mm Hg in both arms and 220/130 mm Hg in the left leg. The blood pressure in the right arm was 165/120 mm Hg while the patient was standing and 180/125 mm Hg while he was sitting. The pulse

rate was 108 beats per minute. The following diagnoses were considered: (1) congenital heart disease with hypertension, (2) pheochromocytoma, and (3) malignant hypertension.

On March 18, 1950, the patient felt unusually weak and he could not shave because of incoordination involving the right arm and hand. Eating also was difficult for the same reason. When the patient attempted to walk, he had to be assisted because of an unsteady gait and weakness of the right leg and foot. He was admitted to the hospital. He soon became drowsy and fell asleep. At the time of his admission to the hospital, his blood pressure was 290 mm Hg systolic and 170 mm Hg diastolic. Progressive aphasia developed a short time later. Eight milligrams of piperoxan hydrochloride were administered intravenously. The blood pressure decreased from 250/160 to 180/116 mm Hg in three minutes. It was believed that the patient had had an intracranial hemorrhage and that a pheochromocytoma undoubtedly was present.

The patient's right arm became flaccid, and moderately severe stiffness of the neck became apparent. The drowsiness progressed to unconsciousness, and breathing of the Cheyne-Stokes type developed. Lumbar puncture produced bloody spinal fluid. The pressure of the cerebrospinal fluid was 32 cm of water. On the evening of the same day, a total of 9 mg of piperoxan hydrochloride was administered intravenously at the rate of 1 mg per minute. The effect of this medication on the blood pressure is shown in table 1.

TABLE 1—Effect of Intravenous Injection of Piperoxan Hydrochloride on Blood Pressure*

Minutes After Injection Was Started	Blood Pressure Mm Hg	
	Systolic	Diastolic
1	210	140
2	200	130
3	186	120
4	170	120
5	175	120
6	175	120
7	175	116
8	165	110

* The systolic and diastolic pressures were 205 and 145 mm Hg respectively before injection of the drug was started.

After this medication, the patient's physical condition improved somewhat. He became conscious and rational and some motion returned in the right hand. Continuous intravenous infusion of a 5% aqueous solution of dextrose containing 16 mg of piperoxan hydrochloride per 1,000 cc was started on the evening of the same day. Additional piperoxan hydrochloride was added to the solution subsequently. This regimen produced a moderate reduction in the blood pressure. During the infusion of the piperoxan solution, the systolic blood pressure ranged between 205 and 170 mm Hg, and the diastolic pressure ranged between 150 and 106 mm Hg. The infusion was continued throughout the following day and night. At the end of that time, the patient's general physical condition appeared to be slightly improved, although he remained slightly aphasic and stuporous. Persistent tachycardia was present, perspiration was increased, and the patient was restless.

Excretory urography revealed that the right kidney was lower than normal. Although it appeared to have been depressed by an extrarenal mass, a definite mass could not be demonstrated in the urogram. Scattered areas of calcification were present above the right kidney. Roentgenographic examination of the thorax revealed an area of decreased density in the axillary portion of the right seventh rib, which was considered suggestive of a metastatic lesion.

Despite the recent intracranial hemorrhage and the extreme seriousness of the patient's general physical condition, it was decided that surgical exploration for a pheochromocytoma would offer the best chance for survival.

9 (a) Graham, J. B. Pheochromocytoma and Hypertension. An Analysis of 207 Cases. *Internat Abstr Surg* 82: 105-121. In *Surg Gynec & Obst.* (Feb.) 1951. (b) Colston, J. A. C. Surgical Aspects of Bilateral Familial Pheochromocytoma. *J Urol* 59: 1036-1060 (June) 1948.

Early on the morning of March 21, 1950, the patient had an other intracranial hemorrhage. He was then taken to the operating room in a completely unconscious condition. Because of the urographic evidence indicating a tumor in the right suprarenal region, this region was exposed through a right posterolateral incision. This procedure disclosed a tumor of the right suprarenal gland. The tumor was unusually large and was surrounded by numerous widely dilated veins. It was adherent to the kidney, and it was impossible to determine whether the kidney was actually invaded by the tumor. Because of the marked adherence of the tumor to the right kidney, the kidney was mobilized, and the tumor and the right kidney were removed together. The peritoneum was opened, and the left suprarenal region was palpated. A definite tumor could not be palpated in this region. At the conclusion of the operation on the right side, it was felt that the patient's condition would not permit any further surgical procedure. Therefore, the left suprarenal gland was not exposed.

Pathological examination revealed that a portion of the right suprarenal gland was stretched over the surface of the tumor, which was a poorly encapsulated pheochromocytoma (fig 1, 2,



Fig 1—Outer surface of the tumor showing the bosselated appearance and some of the many adhesions encountered

and 3). The tumor measured 12 by 10 by 6 cm and weighed 250 gm. The kidney itself weighed 140 gm.

On the morning of the day of operation, 20 cc of aqueous solution of adrenal cortex extract and 20 mg of piperoxan hydrochloride were administered intravenously in 1,000 cc of a 5% solution of dextrose. Owing to the loss of a considerable amount of blood, 2,500 cc of blood was transfused in the course of the operation. As soon as the tumor was removed, the intravenous administration of 1,000 cc of a 5% aqueous solution of dextrose containing 20 cc of aqueous solution of adrenal cortex extract and 15 cc of a 1:1,000 solution of epinephrine was started. The level of the blood pressure was controlled by regulating the rate of injection of this solution. The administration of this solution was continued during the immediate postoperative period.

Since the blood pressure began to rise again on the evening of the day of the operation, it was necessary to discontinue the administration of the epinephrine and to start the administration of piperoxan hydrochloride. In the course of this phase of rising blood pressure, the rectal temperature increased from 102 to 104 F, the pulse rate increased from 105 to 130 beats per minute, pulsus alterans developed, and the pupils became as small as pinpoints. Owing to the wide fluctuation of the blood pressure, which first necessitated the administration of epi-

nephrine and, subsequently, the administration of piperoxan hydrochloride, it was necessary for a physician to remain in constant attendance in order to regulate the dosage of the drugs. During a period of four hours, namely, from midnight to 4 a.m., it was necessary to administer intravenously 96 mg of piperoxan hydrochloride in 800 cc of a 5% solution of dextrose in isotonic sodium chloride solution.



Fig 2—Cut surface of the tumor showing a large central pale zone resulting from organization of a hematoma

The patient's physical condition remained satisfactory on the day after the operation. The blood pressure continued to drop, however, even after the administration of piperoxan hydrochloride was discontinued. In order to maintain the level of patient's blood pressure at 120 mm Hg systolic and 82 mm diastolic, it was necessary to administer intravenously 10 cc of aqueous solution of adrenal cortex extract and 6 cc of a 1:1,000 solution of epinephrine in 1,000 cc of a 5% solution of dex-

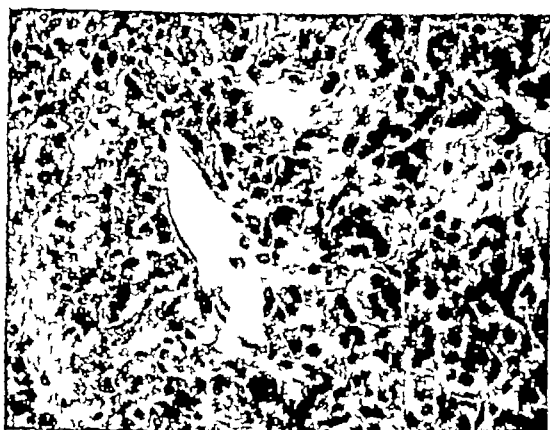


Fig 3—Large granular liver like cells are arranged in alveolar clusters. The very intimate relation of the tumor cells to large vascular sinusoids is ideal for the sudden release of vasopressor substances (hematoxylin and eosin stain $\times 227$)

trose. The administration of this solution was continued for two days. At the end of that time, treatment was discontinued, except for general supportive measures.

During the 24 hours of the sixth day after the operation, 0.45 mg of corticosteroids was excreted in the urine. The neurological symptoms had improved, and the only evidence of

aphasia was an occasional word block. The blood pressure remained stabilized at a level of 135 mm Hg systolic and 85 mm diastolic. Although hemiplegia still was present at that time, it improved gradually until on the 21st day after the operation the patient was able to walk without assistance. The intensity of the heart murmur was markedly diminished.

Physical therapy was applied to the paralytic limbs on the 20th day after the operation. This was increased gradually to include gait training and fine movements of the hand and fingers. Normal function ultimately returned.

On the 42nd day after the initial operation, a partial resection of the right seventh rib was performed in order to remove the lesion that had been noted previously in this region. The lesion proved to be a metastatic pheochromocytoma. After the second operation, repeated clinical tests, including the cold pressor test, the Roth Kvale histamine test, and the administration of piperoxan hydrochloride, did not disclose any evidence of a pheochromocytoma. When the patient was dismissed on the 50th day after the first operation, his general physical condition was good. At that time, his blood pressure was 120 mm Hg systolic and 80 mm diastolic.

When the patient returned to the clinic in September, 1950, his blood pressure was recorded as 155 mm Hg systolic and 110 mm diastolic. Examination did not reveal any residual hemiplegia, and clinical tests did not disclose any evidence of a pheochromocytoma. When he next was seen at the clinic on June 20, 1951, his blood pressure was recorded as 154 mm Hg

TABLE 2—Effect of Intramuscular Injection of Regitine on the Blood Pressure and Pulse Rate*

Minutes After Injection	Blood Pressure Mm Hg		Pulse Rate
	Systolic	Diastolic	
1	170	120	72
8	164	114	72
5	160	110	76
10	166	112	76
15	174	130	70
20	168	112	76

* Before the injection was started the blood pressure was 172 mm Hg systolic and 120 mm Hg diastolic and the pulse rate was 72.

systolic and 106 mm diastolic. When the cold pressor test was applied, the systolic pressure rose from 148 to 184 mm Hg, and the diastolic pressure rose from 95 to 136 mm Hg. The intravenous administration of 0.03 mg of histamine base caused the systolic pressure to rise from 150 to 160 mm Hg and caused the diastolic pressure to rise from 100 to 112 mm Hg. The effects of the intramuscular administration of 5 mg of Regitine on the blood pressure and pulse rate are shown in table 2. The results of these clinical tests were not considered indicative of a pheochromocytoma.

In a letter written Nov. 20, 1951, the patient's family physician said that the patient's blood pressure was 120 mm of mercury systolic and 80 diastolic, and that his pulse rate was 76.

When the patient returned to the clinic for another check up on May 30, 1952, his general physical condition was good and there was no objective evidence of a recurrence of the tumor. His blood pressure was 170 mm Hg systolic and 130 mm diastolic.

COMMENT

This case is an example of a malignant pheochromocytoma that produced sustained hypertension with marked fluctuations in the blood pressure. A single metastatic lesion was noted at the first examination. Removal of the primary tumor and a secondary metastatic lesion resulted in clinical improvement, which to date has persisted for more than two years. The value of the cooperative efforts of physiologist, internist, anesthesiologist, and surgeon in the management of a hemiplegic, stuporous patient with sustained hypertension caused by pheochromocytoma is well illustrated.

Since this patient was treated, we have had additional experience with similar patients, enabling us to improve our program of control of blood pressure before, during, and after operation. When anesthesia is to be induced, a needle is inserted into a vein. Connected to this needle is a three way stop-cock, which, in turn, is connected to (1) a syringe containing Regitine, (2) a syringe containing arterenol, and (3) a jar of 5% solution of dextrose-isotonic sodium chloride solution. Thus the blood pressure may be controlled before and during operation, when there may be extreme fluctuations in blood pressure. If, during induction of anesthesia or during operation, the blood pressure rises significantly, Regitine may be administered in sufficient quantity to neutralize circulating epinephrine and thus lower the blood pressure to the desired level. If, after the pheochromocytoma is removed, the blood pressure falls below safe levels, arterenol may be administered to raise the blood pressure to a desired level. If neither of these measures is necessary, the needle may be kept patent by allowing the dextrose or sodium chloride solution to be infused.

A critical period in the management of patients with pheochromocytoma is the first 24 to 48 hours after operation. At this time, the blood pressure usually falls to unsafe levels. Therefore, we administer continuously a solution of arterenol intravenously. The rate of infusion is regulated according to the quantity of arterenol necessary to maintain normal blood pressure. Because of the seriousness of this phase of the patient's recovery, a team of specially trained nurses are on 24 hour duty. Also, until the patient's blood pressure is stabilized, a physician remains with the patient to supervise the medical treatment.¹⁰

10 Hightower N C, Roth G M, and Priestley J T. Operative and Postoperative Control of Patients with Pheochromocytoma abstracted Proc Central Soc Clin Research 25:41 1952

Tonsillectomy—There was a time tonsillectomy was the most frequently performed of all operations in the United States. Fortunately that time has passed; however, there still are many patients, chiefly children and young adults, for whom tonsillectomy is indicated. When a young person has repeated bouts of tonsillitis with continuing evidences of chronic infection such as fever, leucocytosis, increased sedimentation rate, mild muscle and joint pains, cervical adenitis after the acute attack has subsided and vigorous antibiotic therapy has failed to clear up the infection, the indication for tonsillectomy seems clear. The tonsils of such persons will usually be found to be chronically inflamed, though not necessarily enlarged, with redness extending to the surrounding structures. Removal of such tonsils before rheumatic fever, rheumatoid arthritis, chronic infections of the urinary tract, subacute bacterial endocarditis, etc., develop is the most constructive thing to do. Improvement in these conditions from tonsillectomy after they have developed cannot always be expected, but it does seem rational to remove whatever active infection one can get at. It is hardly necessary to state that antibiotic therapy should precede operation for 24 hours and follow it for a few days. Of course, tonsillectomy should never be undertaken during the acute phase of rheumatic fever, however, in several instances when fever has continued several months after the joint pains and acute signs of carditis have subsided, we have seen the fever subside promptly after chronically diseased tonsils were removed.—P S Rhoads, M D, Joint Responsibility of the Otolaryngologist and the Internist in Removal of Focal Infection, *The Laryngoscope* March, 1953

MIDDLE LOBE SYNDROME PRODUCED BY FOREIGN BODY IN LOWER THIRD OF ESOPHAGUS

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Much has been written recently about the etiology of the so-called middle lobe syndrome. From a review of the works published by Brock,¹ Zdansky,² Graham and co-workers,³ Paulson and Shaw,⁴ and others,⁵ there seems to be agreement that it is due in most cases to bronchial obstruction caused either by pressure from without or by narrowing of the lumen due to formation of chronic inflammatory tissue within. The commonest cause is pressure from without, usually due to enlargement of the peribronchial lymph nodes. As emphasized by Brock, the middle lobe bronchus lies at the apex of the lymphatic pathways from both the upper and lower lobes thus making it particularly vulnerable from the standpoint of lymphadenopathy. We present a case of atelectasis of the right middle lobe caused by the presence of a large foreign body in the lower third of the esophagus, to our knowledge the first of its type reported.

REPORT OF A CASE

A 25 year-old Negro man was admitted to the Thoracic Surgical Section of Tokyo Army Hospital on Sept 18, 1951. On Sept 11, while at the front in North Korea, this patient was blown out of his foxhole by an artillery fire blast. At that time his denture was broken in his mouth and he swallowed part of it. He experienced severe sharp pain progressing from the throat

down to the epigastric area and afterward was unable to swallow any liquid or solid food. He was first admitted to the 8076 Mobile Army Surgical Hospital and then evacuated to 121st Evacuation Hospital, where roentgenograms revealed the presence of the foreign body in the lower third of the

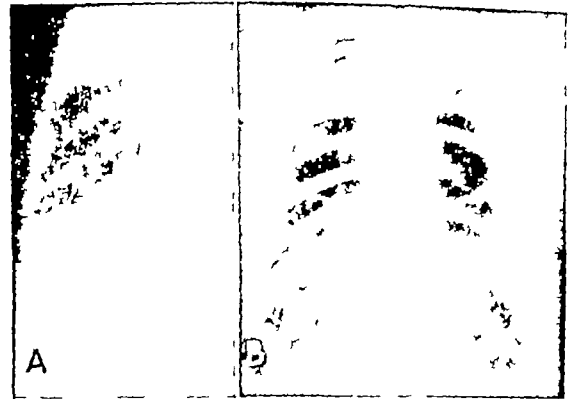


Fig 2—Postoperative films showing A, swallowed barium, and B, a complete resolution of the atelectasis of the right middle lobe (posteroanterior).

esophagus. On admission here, physical and x-ray examination of the chest showed the foreign body described above and an atelectasis of the right middle lobe (fig. 1). Esophagoscopy was not advised because of the size and shape of the metallic foreign body and the length of time that had elapsed since onset.

A right thoracotomy was performed through the usual posterolateral incision. The foreign body was felt in the lower third of the esophagus, in the wall of which were found several perforations. The swelling and edema in that area of the mediastinum extended to the region of the hilum of the middle and lower lobes. This area was dissected, and several large lymph nodes were found pressing on the right middle lobe bronchus but were not removed. A 5 cm longitudinal incision was made in the wall of the esophagus, and the denture was carefully removed. The defect was closed, and the mediastinum was left open into the pleural space (fig. 2). The right chest was drained by means of two stiff right angle rubber tubes, which were connected to low pressure suction and removed after 24 hours. The patient made an uneventful recovery and returned to duty six weeks after surgery. He was still doing well one year postoperatively.

COMMENT

This patient was operated on to relieve dysphagia and to remove the source of the mediastinitis. The atelectasis of the right middle lobe is thought to have been due to the pressure exerted on the right middle lobe bronchus by the enlarged lymph nodes and the edematous mediastinum. After surgery the mediastinum and lymph nodes returned to normal, and on the fourth postoperative day the right middle lobe atelectasis began to clear and had completely disappeared within two weeks. This would seem to bear out the conclusion of other authors that the middle lobe syndrome is due to obstruction of the middle lobe bronchus caused by extrinsic pressure exerted by enlarged peribronchial lymph nodes or narrowing of the lumen of the bronchus by chronically inflamed tissue.

SUMMARY

The literature regarding the etiology of so-called middle lobe syndrome is reviewed and a case presented of such a syndrome produced by the presence of a denture in the lower third of the esophagus. The denture was removed through a right thoracotomy, and the atelectasis cleared. To our knowledge, this is the first case of its kind reported in the literature.

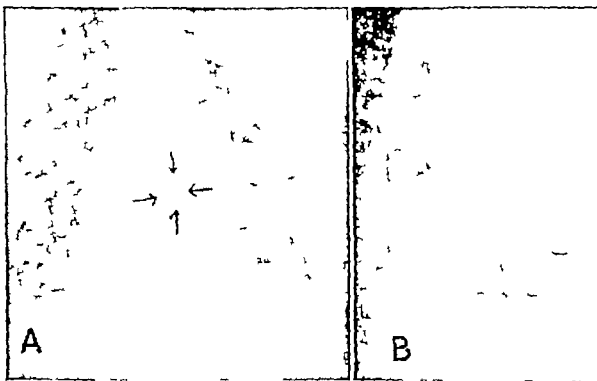


Fig 1—Atelectasis of the right middle lobe. A, the denture can be seen at the lower third of the esophagus. B, the lateral view shows the denture and the atelectasis.

From the Thoracic Surgical Section, Tokyo Army Hospital, Tokyo, Japan.

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SEBACEOUS CYSTS

CORRELATION OF CLINICAL AND PATHOLOGICAL DIAGNOSES IN THREE HUNDRED CASES

Stanley Gross, M D, New York

The sebaceous cyst is a common lesion and in the vast majority of cases is regarded as a benign and harmless one. These growths are often disregarded, but when they cause the patient to seek medical advice they are frequently excised. In this study, an attempt has been made to correlate the clinical diagnosis of sebaceous cyst with the final pathological diagnosis. Most of these cases were designated sebaceous cysts by the clinicians, but a wide variety of terms, including steatoma, wen, pseudoatheroma, and epidermoid inclusion cyst, was used on occasion. All cases were included, regardless of exact terminology, if it could be ascertained that the clinician meant the lesion commonly called sebaceous cyst.

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Analysis of the 52 cases (see table) in which an incorrect clinical diagnosis was made revealed a wide variety of lesions. In this series 24 separate and distinct pathological diagnoses were made on lesions erroneously called sebaceous cysts clinically. The commonest lesions confused with the sebaceous cyst were lipomas (7 cases), fibromas (5 cases), inflammation of the skin and subcutis (5 cases), sclerosing hemangiomas (4 cases), and pigmented nevi (4 cases). These are all rather common lesions of the skin and subcutis and may simulate the sebaceous cyst in consistency, appearance, and circumscription. The majority of the remaining lesions were rarer and are usually considered only in an extended list of differential diagnoses of tumors of the skin and subcutis, however, some are malignant, and therefore utmost care must be exercised to see that the primary lesion is adequately excised. To this end adequate sections must be prepared and examined not only to arrive at a diagnosis but also to determine whether the lesion has been entirely removed.

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SUMMARY AND CONCLUSIONS

Of 300 cases, the clinical diagnosis of sebaceous cyst was correct in 248 cases (82.7%). In 52 cases (17.3%) the pathological diagnosis was at variance with the

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MIDDLE LOBE SYNDROME PRODUCED BY FOREIGN BODY IN LOWER THIRD OF ESOPHAGUS

Major A R Valle

and

Lieut W A Cloutier (MC), U S Army

Much has been written recently about the etiology of the so-called middle lobe syndrome. From a review of the works published by Brock,¹ Zdansky,² Graham and co-workers,³ Paulson and Shaw,⁴ and others,⁵ there seems to be agreement that it is due in most cases to bronchial obstruction caused either by pressure from without or by narrowing of the lumen due to formation of chronic inflammatory tissue within. The commonest cause is pressure from without, usually due to enlargement of the peribronchial lymph nodes. As emphasized by Brock, the middle lobe bronchus lies at the apex of the lymphatic pathways from both the upper and lower lobes thus making it particularly vulnerable from the standpoint of lymphadenopathy. We present a case of atelectasis of the right middle lobe caused by the presence of a large foreign body in the lower third of the esophagus, to our knowledge the first of its type reported.

REPORT OF A CASE

A 25-year old Negro man was admitted to the Thoracic Surgical Section of Tokyo Army Hospital on Sept 18, 1951. On Sept 11, while at the front in North Korea, this patient was blown out of his foxhole by an artillery fire blast. At that time his denture was broken in his mouth and he swallowed part of it. He experienced severe sharp pain progressing from the throat

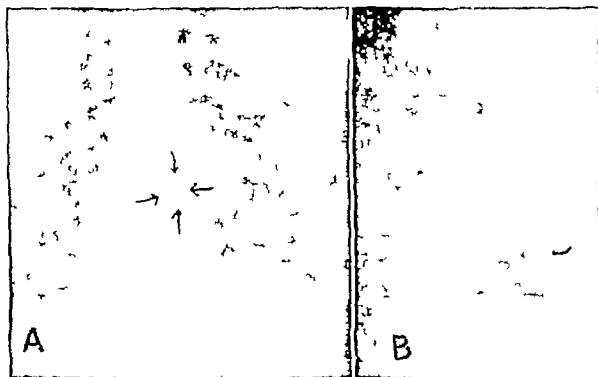


Fig 1—Atelectasis of the right middle lobe. A the denture can be seen at the lower third of the esophagus. B the lateral view shows the denture and the atelectasis.

From the Thoracic Surgical Section, Tokyo Army Hospital, Tokyo, Japan.

1 Brock R. C. Cann R. J. and Dickinson J. R. Tuberculous Mediastinal Lymphadenitis in Childhood. Secondary Effects on Lungs. *Guy's Hosp Rep* 87:295-317, 1937. Brock R. C. The Anatomy of the Bronchial Tree with Special Reference to the Surgery of Lung Abscess. London: Oxford University Press, 1946.

2 Zdansky E. Der Mittellappen als Punctum minoris resistential der Lunge. *Wien Klin Wchnschr* 58:197-200, 1946.

3 Graham E. A. Burford T. H. and Mayer J. H. Middle Lobe Syndrome. *Postgrad Med* 4:29-34, 1948.

4 Paulson D. L. and Shaw R. R. Chronic Atelectasis and Pneumonitis of Middle Lobe. *J Thoracic Surg* 18:747-760, 1949.

5 Fleischner F. Das Röntgenbild der Interlobären Pleuritis und seine Differentialdiagnose. *Ergebn d med Strahlenforsch* 2:197-248, 1926. Kopstein G. Zur Frage der perihilären Verdichtungsprozesse. *Med Klin* 25:869-871, 1929. Zur röntgenologischen Symptomatologie von Mittellappenerkrankungen. *Zugleich ein Beitrag zur Analyse hilusmaker Verdichtungen.* *Fortschr d Geb d Röntgenstrahlen* 48:145-165, 1933. Assmann, H. Die klinische Röntgendiagnostik der inneren Erkrankungen. ed. 5. Leipzig: F. C. W. Vogel, 1934. Hampton A. O. and King D. S. Middle Lobe of Right Lung: Its Roentgen Appearance in Health and Disease. *Am J Roentgenol* 35:721-739, 1936.

down to the epigastric area and afterward was unable to swallow any liquid or solid food. He was first admitted to the 8076 Mobile Army Surgical Hospital and then evacuated to 121st Evacuation Hospital, where roentgenograms revealed the presence of the foreign body in the lower third of the

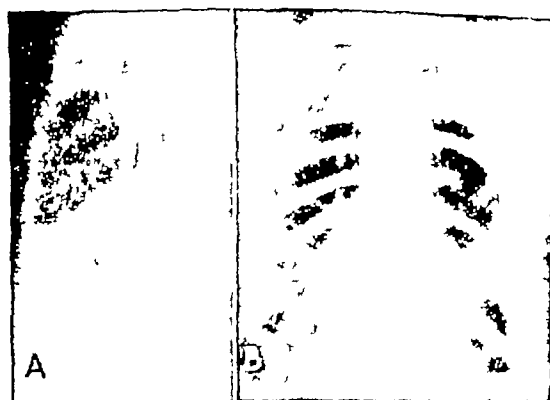


Fig 2—Postoperative films showing A swallowed barium, and B a complete resolution of the atelectasis of the right middle lobe (posteroanterior).

esophagus. On admission here, physical and x-ray examination of the chest showed the foreign body described above and an atelectasis of the right middle lobe (fig. 1). Esophagoscopy was not advised because of the size and shape of the metallic foreign body and the length of time that had elapsed since onset.

A right thoracotomy was performed through the usual posterolateral incision. The foreign body was felt in the lower third of the esophagus, in the wall of which were found several perforations. The swelling and edema in that area of the mediastinum extended to the region of the hilum of the middle and lower lobes. This area was dissected, and several large lymph nodes were found pressing on the right middle lobe bronchus but were not removed. A 5 cm longitudinal incision was made in the wall of the esophagus, and the denture was carefully removed. The defect was closed, and the mediastinum was left open into the pleural space (fig. 2). The right chest was drained by means of two stiff right angle rubber tubes, which were connected to low pressure suction and removed after 24 hours. The patient made an uneventful recovery and returned to duty six weeks after surgery. He was still doing well one year postoperatively.

COMMENT

This patient was operated on to relieve dysphagia and to remove the source of the mediastinitis. The atelectasis of the right middle lobe is thought to have been due to the pressure exerted on the right middle lobe bronchus by the enlarged lymph nodes and the edematous mediastinum. After surgery the mediastinum and lymph nodes returned to normal, and on the fourth postoperative day the right middle lobe atelectasis began to clear and had completely disappeared within two weeks. This would seem to bear out the conclusion of other authors that the middle lobe syndrome is due to obstruction of the middle lobe bronchus caused by extrinsic pressure exerted by enlarged peribronchial lymph nodes or narrowing of the lumen of the bronchus by chronically inflamed tissue.

SUMMARY

The literature regarding the etiology of so-called middle lobe syndrome is reviewed and a case presented of such a syndrome produced by the presence of a denture in the lower third of the esophagus. The denture was removed through a right thoracotomy, and the atelectasis cleared. To our knowledge, this is the first case of its kind reported in the literature.

SEBACEOUS CYSTS

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clinical diagnosis. Tabulation of these diagnoses reveals 24 different pathological entities. In 43 cases there was a moderately severe inflammatory reaction, usually a granulomatous foreign body reaction, associated with the sebaceous cyst. No case of carcinoma arising in a sebaceous cyst was found in this series. Excised sebaceous cysts must be examined histologically to arrive at a correct diagnosis.

303 E 20th St (3)

SIMPLE RECEPTACLE FOR T-TUBE DRAINAGE

James R. Watson, M.D., Pittsburgh

Any system that provides for drainage of the common bile duct consists of two essential parts, a catheter or T-tube to be placed in the duct and a receptacle for collecting the bile, which is attached to the dressing on the abdominal wall. I have used a number of devices for the



Receptacle for T tube drainage in use

receptacle, none of which have ever been completely satisfactory to either the patients or the attending nurses. Any unexpected change in position on the part of the patient would be apt to cause spillage of bile on the dressing and the bed.

Recently, after having inserted a T-tube in the common duct of an obese patient and having applied the dressing, I was confronted with a T-tube that was too short to reach the 8 oz (250 cc) pharmacy bottle and nipple that I usually used for the receptacle. The nursing supervisor, Miss Catherine Marburger, speedily remedied the problem by obtaining a secondary Venopak unit (a disposable venoclysis unit for intravenous administration of fluids [Abbott]). The unit consisted of a length of plastic tubing with an adapter that fit the T-tube perfectly. The other end of the tubing had a screw cap attached to it that contained an air vent. The thought immediately occurred to use a 250 cc intravenous solution bottle that the cap

had been made to fit. Adhesive tape was applied to the bottom and sides of the bottle to serve as a sling, which was pinned to the dressing. A scultetus binder was placed over the dressing and the excess tubing coiled beneath it.

There has been no spillage problem since I have used this method. It represents the best device with which I have had any experience (figure). It has the following advantages: 1. The secondary unit and bottle are readily available at negligible cost. 2. The unit is packaged in a sterile container ready for immediate use. 3. There is no spillage of bile on the bed or dressing. 4. The bottle is calibrated by the manufacture to 250 cc, which permits accurate measurement of the amount of drainage. 5. The bottle is easily removed and replaced when it needs to be emptied.

435 Seventh Ave (19)

ISOLATION OF COXSACKIE VIRUS FROM PATIENTS WITH EPIDEMIC PLEURODYNIA

Óskar T. Thordarson, M.D.

Bjorn Sigurdsson, M.D.

and

Halldór Grimsson, fil. mag., Reykjavik, Iceland

Epidemic myalgia, or pleurodynia, was probably first observed as a clinical entity by the Icelandic physician Jón Finsen.¹ In 1874 he described two epidemics of the disease, one of them occurring in 1856 and the other in 1866. Finsen called the disease pleurodynia. Since 1928 the disease has annually figured in the Icelandic health reports.

Several authors have recently reported the successful isolation of strains of the so-called Coxsackie viruses in cases of epidemic pleurodynia.² These observations stimulated us to search for this type of virus in an epidemic that occurred in Reykjavik, in 1951. In the period from April to August, 1951, 225 cases of epidemic pleurodynia were registered in Reykjavik, a town of 57,500 inhabitants. The morbidity thus amounted to about 0.5%. In this period no cases of anterior acute poliomyelitis or aseptic meningitis were reported. The main symptoms and signs in these patients were as follows: no prodromes and a sudden beginning in 8, thoracic pain in 14, abdominal pain in 7, pain in the extremities in 4, headache in 3, sore throat in 2, cuffing in 2, fever (temperatures of 37.5 [99.5 F] to 40 C [104 F]) for one to

From the Institute of Experimental Pathology, University of Iceland.

1. Finsen J. *Iagttagelser angaaende Sygdomsforholdene i Island*. Copenhagen: C. A. Reitzels Forlag, 1874. pp. 145-146.

2. Dalldorf G. and Sickles G. M. An Unidentified Filtrable Agent Isolated from the Feces of Children with Paralysis. *Science* 108: 61-62, 1948. Curnen E. C. Shaw E. W. and Melnick J. L. Disease Resembling Nonparalytic Poliomyelitis Associated with Virus Pathogenic for Infant Mice. *J. A. M. A.* 141: 894-901 (Nov. 26) 1949. Curnen E. C. Human Disease Associated with the Coxsackie Viruses. *Bull. New York Acad. Med.* 26: 335-342, 1950. Weller T. H. Enders J. F. Buckingham M. and Finn J. J. Jr. Etiology of Epidemic Pleurodynia. Study of 2 Viruses Isolated from Typical Outbreak. *J. Immunol.* 65: 337-346, 1950. Findlay G. M. and Howard E. M. Coxsackie Viruses and Bornholm Disease. *Brit. M. J.* 1: 1233-1236, 1950. Geffen T. Bornholm Disease. *ibid.* 1: 1185-1187, 1951. Brown C. M. Liddle D. C. and Tobin J. O. Bornholm Disease and Coxsackie Virus. *Lancet* 1: 445-446, 1952. Lazarus A. S. Johnston E. A. and Galbraith J. E. An Outbreak of Pleurodynia with Special Reference to the Laboratory Diagnosis of Coxsackie Virus Infections. *Am. J. Pub. Health* 42: 20-26, 1952.

six days in 13,³ severe illness in 2, muscle tenderness in 8, signs of pleurisy in 1, hyperemic pharynx in 5, and bronchitis in 1

The following methods were employed for isolating and identifying the virus. 1 Extracts of stool were prepared and injected intraperitoneally into suckling mice, less than 48 hours old. 2 A histological examination was performed on animals that became paralyzed. 3 Neutralizing antibodies against one of the virus strains isolated were measured in paired serums from the patients. Samples of stools and serum were collected from the patients as soon as the diagnosis was considered certain. In 13 patients this was from 1 to 4 days after they became ill, and in 2 it was 6 and 10 days, respectively, after the disease began. The patients were bled for the second time about three weeks after the first bleeding. Feces and serum were frozen immediately after collection and kept at -22 C until used. In preparation for injection the stool suspension was first centrifuged several times at low speed to remove coarse particles and bacteria. After this it was

TABLE 1—Results of Attempts to Isolate Cocksackie Virus from the Blood Serum of Fifteen Patients with Epidemic Pleurodynia

Case	First Passage		Second Passage		Results of Histological Examination	Recovery of Virus
	Proportion of Mice That Died to Those Inoculated	Paralysis Produced by Inoculation	Proportion of Mice That Died to Those Inoculated	Paralysis Produced by Inoculation		
1	1/6	—	2/7	—	—	—
2	2/6	—	0/6	—	—	—
3	3/6	+	1/7	+	+	+
4	4/4	—	0/6	—	—	—
5	6/6	—	6/7	—	—	—
6	6/10	—	0/7	—	—	—
7	5/5	+	7/7	+	+	+
8	2/6	+	8/8	+	+	+
9	3/6	+	8/8	—	+	+
10	1/8	+	10/12	+	+	+
11	7/8	+	0/6	—	+	+
12	1/6	—	9/10	+	+	+
13	6/6	+	6/6	—	+	+
14	0/6	—	—	—	—	—
15	5/8	+	—	—	+	+

run in the Spinco ultracentrifuge, rotor F, at 29,500 rpm (73,000 times the force of gravity) for two and one-half hours, so that sediment was deposited in the virus. It was resuspended in a small volume used for inoculation. To this extract were added penicillin and streptomycin in sufficient quantity so that the extract contained 2,000 units of penicillin and 10 mg of streptomycin per milliliter. Of this extract, 0.05 ml were injected intraperitoneally into suckling mice. Mice dying less than 48 hours after the injection were discarded. Paralysis and specific deaths occurred on the 3rd to the 12th day, usually on the 7th to the 9th day. When paralysis occurred, it was usually very distinct and most commonly affected the hind legs. Only animals with distinct paralysis were used for passing virus and for histological work. Material from the first passage was passed on to other suckling mice. The skin and the viscera were removed and the remaining carcass suspended in the Waring Blender, diluted, and injected

Table 1 shows the results of our attempts to isolate Cocksackie virus from the 15 patients. It will be seen that a virus producing paralysis was isolated in 9 cases out of 15. A histological examination was carried out on the experimental animals in whom changes occurred due to the virus. The muscles were examined in all cases, and the liver and brain in several of the animals. The histological changes were generally very conspicuous, and in every case they were of the same type as has repeatedly been described for Cocksackie virus infections. Four of the virus strains isolated were injected into a number of adult mice and proved to be nonpathogenic.

Paired serums from seven patients were tested for the presence of neutralizing antibodies against one of our newly isolated strains. Three dilutions of serum, 1:10, 1:50, and 1:250, were tested against 100 minimal lethal doses of virus. The results of this neutralization test may be seen in table 2. It will be seen that in five of the seven patients examined a significant rise in antibody titer against this virus strain was observed. In the remaining two cases a rise in antibody titer against the strain used was not found. Virus had been isolated from one of these two patients, but this strain has not been subjected to an

TABLE 2—Results of Tests for Neutralizing Antibodies in Paired Serums from Seven Patients

Case	Proportion of Mice That Showed Symptoms to Those Inoculated *						Rise in Titer
	Acute Stage Serum			Convalescent stage Serum			
	1 10	1 50	1 250	1 10	1 50	1 250	
8	2/7	6/6	7/7	4/10	6/7	0/6	—
4	4/6	7/7		0/6	0/6		+
5	2/6	6/6		7/7	8/8		—
10	1/11	2/7	5/6	0/6	0/6		+
11	1/6	2/6	5/5	7/7	1/8	0/7	+
13*	3/6	7/9	5/7	3/5	0/6		+
15	2/5	7/7	1/7	1/6	0/6	0/6	+

* Virus isolated from the patient in case 13 was employed in these tests.

immunologic examination. Possibly it may differ from the strain used in the neutralization test. From the neutralization test, however, it may be concluded that at least six of the patients in whom virus was found have gone through an infection with a similar or an identical strain of virus. These investigations have not been carried further because of lack of time, and for the same reason no attempt has been made to classify immunologically the strains isolated.

SUMMARY

A widespread epidemic of epidemic pleurodynia occurred in Reykjavik from April to August, 1951. An account was given of the main symptoms observed in the patients in this epidemic. Fifteen patients with epidemic pleurodynia were examined for the presence of Cocksackie virus in their stools. Such virus was isolated from 9 of the 15 patients tested. Neutralization tests on paired serums from seven patients indicated that at least six of the patients had gone through an infection with a similar or an identical type of virus. We conclude that these experiments lend support to the view that epidemic pleurodynia is caused by viruses of the Cocksackie group.

³ In one case the temperature was not taken. One other patient had a normal temperature.

COUNCIL ON PHARMACY AND CHEMISTRY

REPORT TO THE COUNCIL

The Council has authorized publication of the following report submitted to the Committee on Research

R T STORMONT, M D, Secretary

In some instances, dangerous side-reactions to highly potent therapeutic agents constitute a more serious threat to the life of the patient than the disease for which the patient is being treated. The hypoplastic anemias that aroused considerable attention recently are a case in point.

The following report to the Committee on Research was prepared at the request of the Committee and represents the first step in a further investigation of the causes and incidence of the hypoplastic anemias in the United States. A Sub-committee on Blood Dyscrasias has been appointed and will soon meet to formulate a plan of study and protocols for analysis of cases of hypoplastic anemia.

The matter of earlier reporting of all drug reactions, including the hypoplastic anemias, was discussed at the annual meetings of the Committee on Research and the Council on Pharmacy and Chemistry. It was felt that information on the potential dangers of therapeutic agents should be called to the attention of the profession at the earliest opportunity. To accomplish this purpose the Committee on Research was authorized to take measures for the collection of available data on the hazards, reactions, and results in connection with treatment utilizing new procedures and drugs and to inform the practicing physicians of the existence of this agency for collecting such data. The Committee on Research was urged to compile these data into reports to be submitted from time to time for publication in THE JOURNAL.

Physicians are urged to report immediately all incidents of untoward drug reactions especially with newer therapeutic agents, to the undersigned at the A M A Headquarters and to the Food and Drug Administration in Washington.

PAUL L WERMER, M D, Secretary,
Committee on Research

HYPOPLASTIC ANEMIAS AND RELATED SYNDROMES CAUSED BY DRUG IDIOSYNCRASY

Edwin E Osgood, M.D., Portland, Ore

Hypoplastic anemia is essentially the simultaneous occurrence of erythrocytic, granulocytic and thrombocytic hypoplasia. These conditions may occur separately or in any combination. An absolute decrease in the lymphocytic series of cells is often associated, although they are relatively less affected as a rule. Agents that produce one of these syndromes will often produce two or more of these syndromes simultaneously in different persons or in larger doses.

DIAGNOSIS

Pure erythrocytic hypoplasia is characterized by normocytic anemia with a decrease in reticulocytes in the blood to few or none and a great decrease in the number of nucleated erythrocytes in the aspirated marrow.

Granulocytic hypoplasia is characterized by a decrease in the absolute number of cells of the granulocytic series in the peripheral blood and also a great decrease in the number of these cells in the aspirated bone marrow. When the total number of neutrophils in the blood falls below 200 per cubic millimeter, invasions of the mucous membranes of the body by micro-organisms usually follow. These are usually mixed infections with many different organisms, but *Borrelia vincenti* (Vincent's organisms) often predominate. Soreness and membranous ulceration of the gums are usually the first mani-

festation, but any mucous membrane in the body and the alveoli of the lungs may also be invaded. If the infection remains untreated, it may cause death in a very short time.

Thrombocytic hypoplasia is characterized by decreased thrombocytes in the blood and decreased nucleated cells of the thrombocytic series in the marrow. The clinical features are spontaneous petechial and purpuric spots scattered over the body, ecchymoses rather than hematomas from trauma, spontaneous bleeding from the gums, and menorrhagia. Cerebral hemorrhage is the common cause of death.

The most reliable laboratory test of thrombocyte function is the clot retraction test. Serious bleeding rarely occurs when clot retraction begins within one hour and is complete in 18 to 24 hours, but serious bleeding is an imminent danger when clot retraction fails to occur. The thrombocyte count, as done in the average clinical laboratory, is almost worthless as a guide to therapy even skilled hematologists find that one in 20 replicate thrombocyte counts will fall outside a range of $\pm 50\%$ of the mean of a large number of counts. Other indications of deficient thrombocyte function are a bleeding time over eight minutes, a positive petechiometer (capillary fragility) test, and scarce or total lack of thrombocytes as observed in stained blood smears.

Hypoplastic anemia exhibits all of the aforementioned features combined. Because of the difference in life spans of these cells (24 to 96 hours for thrombocytes, 72 to 144 hours for the granulocytic series of cells, and 120 days for the erythrocytic series), the thrombocytopenia and granulocytopenia usually long precede the anemia, but the decrease in reticulocytes and in nucleated erythrocytes (life span of 36 to 48 hours each) occurs early, as does the hypocellularity in the bone marrow. A total nucleated cell count of aspirated bone marrow under 10,000 per cubic millimeter is suggestive, whereas a count under 6,000 is diagnostic if no cells characteristic of aleukemic leukemia are present in the aspirate.

The drug induced hypoplastic syndromes differ from other hypoplastic syndromes in that the disease develops in only a small proportion of the population exposed to risk, and the severity of the hypoplasia shows little relationship to the dose administered. In other words, there is a difference or idiosyncrasy to the particular drug in the response of the person affected. Evidence suggests that these untoward reactions occur more commonly in persons with a history of allergy and on a second or an intermittent course of treatment than with the first administration of the agent. However, cases have occurred in persons with no history of allergy after the first administration of small doses well within the range of those tolerated by the great majority of persons.

The mechanism of this idiosyncrasy is unknown. In my opinion, the known facts are best explained if the drug or one of its metabolites, in susceptible persons, combines with an essential protein of the cell to form a new protein that causes development of antibodies, however, conclusive proof of existence of this mechanism is not available.

The drugs that are known to have produced this type of hypoplastic syndrome are listed in table 1. Therefore, it is especially important to elicit a history of the exact amounts taken and time relationship to onset of symptoms for all drugs the patient received during the four to eight weeks immediately preceding the onset of symptoms or signs of these hypoplastic syndromes. The patient should be questioned specifically about exposure to any of the drugs listed in table 1. Since many of these agents are sold under proprietary names or in trade named mixtures, the list given is incomplete. New preparations are constantly appearing, and an adequate drug history may also involve reading the fine print on original packages at the pharmacy where medication was obtained.

DIFFERENTIAL DIAGNOSIS

These drug idiosyncrasy hypoplasias must be differentiated from hypoplasias of other etiology. The mild hypoplasias (all common) that are associated with certain bacterial, viral, or parasitic infections and with hypothyroidism or with protein deficient diets are usually easily recognized, as is the erythrocytic hypoplasia associated with impairment of renal function. An enlarged spleen will differentiate between the moderately severe hypoplasias associated with the various conditions pro-

ducing portal hypertension and congestive splenomegaly, and drug induced hypoplasias The rare cases of congenital erythrocytic hypoplasia and congenital hypoplastic anemia (Fanconi's syndrome) date from birth whereas the drug induced hypoplasias do not The preceding history, physical examination, and laboratory findings of a patient will reveal the difference between drug induced hypoplasia and the rare hypoplasia

TABLE 1—Classification of Drugs That May Produce an Idiosyncrasy Causing Hypoplastic Anemia or Related Syndromes

Classification	Estimated Relative Risk †
Anticonvulsants	
Methyl phenyl-ethyl hydantoin (Mesantoin)	High
Trimethadione (Tridione)	Moderate
Antihistamines *	
Phenothiazine type (Phenergan)	Moderate
Ethylene diamine type (Pyribenzamine hydrochloride)	Low
Antimicrobial agents	
Arsenobenzols	High
Chloramphenicol (Chloromycetin)	High
Sulfonamides	Moderate
Thiosemicarbazone * (Tibione)	Moderate
Streptomycin	Low
Antithyroid agents	
Thiouracils *	High
Methimazole (Tapazole)	Moderate
Sedatives	
Allylisopropylacetyleurea † (Sedormid)	High
Amibopyrine * (Pyramidon)	High
Phenacemide (Phenurone)	Moderate
Pyrithyldione (Presidion)	Low
Spasmolytics	
Phenothiazines * (Dipareol)	Moderate
Procaine amide * (Pronestyl) hydrochloride	Low
Unclassified group	
Gold preparations	High
Phenylbutazone (Butazolidin)	High
Nitrophenols *	High
Mercurial diuretics	Low
Quinidine †	Low
Quinacrine hydrochloride (Atabrine dihydrochloride)	Low

* Chiefly granulocytic hypoplasia
† Chiefly thrombocytic hypoplasia
‡ Based on proportion of persons receiving drug in whom one of these hypoplastic syndromes is likely to develop. No adequate data are available except for quinacrine for which risk is approximately 1 in 25,000 patient years of exposure

caused by complete myelofibrosis or osteopetrosis or the very rare hypoplasia that constitutes the terminal phase of an occasional patient with lymphocytic leukemia The history of exposure to x rays, radioactive isotopes nitrogen mustards, urethane, dimethyl 1,4-butanedisulfate (Myleran), 6 mercaptopurine, or antifolic acid compounds such as aminopterin, or of occupational exposure to benzol will differentiate the group of cases caused by these agents (all produce hypoplasia in anyone if the dose is large enough) from the drug idiosyncrasy group of hypoplasias There are also idiopathic forms of hypoplasia resulting from an unknown cause, in which the most careful history fails to reveal an agent that might possibly be responsible

The initial occurrence in hypoplasia seems to be prolongation of the intermitotic interval or complete cessation of cell division in the marrow, however, some cases of hypoplasia result from actual destruction of marrow cells The predominant cells remaining in the marrow belong to the plasmocytic, lymphocytic, and histiocytic series but prolonged search will nearly always reveal a few cells of the involved series Therefore, complete aplasia almost never occurs

When cell division begins again, only immature cells are first produced, this predominance of immature cells must not be confused with acute leukemia, which may give every clinical and laboratory sign of hypoplastic anemia The involved cells in acute leukemias have larger nucleoli than their normal counterparts In acute leukemia lymph nodes and the spleen are usually enlarged, and usually the total nucleated cell count of the marrow is over 10,000 per cubic millimeter Enlargement of the spleen and lymph nodes does not occur in the hypoplastic syndromes under consideration except as a focal enlargement in an area draining localized infection The great majority of patients with pancytopenia will prove to have acute aleukemic or subleukemic leukemias if thin smears of the buffy coat of the blood and aspirated marrow are carefully studied for increased numbers of disintegrated cells and blast and

'pro' cell forms with large nucleoli Idiopathic and allergic thrombocytopenic purpuras are differentiated by the normal or increased numbers of megakaryocytes in the marrow

THERAPY

The majority of the cases reported would not have occurred if the risk of the disease had been weighed against the risk of the drug employed For a minor ailment that is almost certain to improve with a safer therapy or only supportive measures, it would certainly seem inadvisable to prescribe a drug that has been known to cause death Any patient who is ill enough to require therapy with such a drug (even though death occurred in only a very small percentage of patients) is certainly ill enough to justify an initial determination of hemoglobin concentration, leukocyte count, reticulocyte count, and clot retraction time These tests should serve as a basis for comparison with subsequent hematological studies after therapy has been started Patients should be told when any drug listed in table 1 is prescribed that the physician should be consulted immediately if soreness of the gums, bleeding from the gums or into the skin, extreme weakness, or pallor develop so that the aforementioned tests can be repeated daily Ideally, these tests should be repeated at least once a week both during the early stages of treatment with any agent listed in table 1, and at the termination of therapy

If any of these tests indicates mild hypoplasia (the range is shown in table 2) it should be repeated daily, any progressive decrease or indication of moderate or severe hypoplasia requires immediate cessation of administration of any drug listed in table 1 or any compounds closely related chemically The patient should be given a card worded as follows John Doe has an idiosyncrasy to (name of drug or compound) that led to the development of (type of hypoplasia) Under no circumstances should he ever again receive this compound or any closely related compounds The patient should be given explicit instructions to keep the card on his person and to show or read this card to any physician he might consult in the future The same information should be included in large print on the front page of his office and hospital records The importance of this procedure cannot be overemphasized Many patients, having recovered from initial attacks of drug induced hypoplasia, have died from subsequent attacks that would never have occurred had this precaution been observed

Patients with moderate asymptomatic granulocytic hypoplasia should receive a daily dosage of 300,000 units of procaine penicillin with 0.5 gm of streptomycin, given intramuscularly For severe hypoplasia or symptomatic hypoplasia,

TABLE 2—Grades of Hypoplastic Syndromes

Test	Mild	Moderate	Severe
Absolute number of neutrophils per cubic millimeter (WBC times %)	500-1500	200-500	< 200
Clot retraction *	Delayed or incomplete	Absent 1 hr	Absent 18 hr
Reticulocytes % †	0.3-0.5	0.1-0.3	< 0.1

* See J. A. M. A 150 1197 (Nov 22) 1952, fig 7 for a good photograph showing incomplete and absent clot retraction Observe rack of blood serology tubes for range of normal clot retraction

† Mix five drops of blood with five drops of freshly filtered 1% brilliant cresyl blue in isotonic sodium chloride solution in a small test tube Let stand 15 minutes and make thin smear Count at least 20 reticulocytes or 200 fields The Miller eyepiece disk (Brecher G A and Schneiderman M Time-Saving Device for Counting of Reticulocytes Am J Clin Path. 20 1079 [Nov 1] 1950) saves time on low counts If the reticulocyte count is low aspirate 0.5 to 2 ml of marrow Mix thoroughly with 2 mg of dry potassium oxalate per ml in small test tube Do total nucleated cell count by technique of leukocyte counting Do differential count of 500 cells on thin Wright's stained smear Total nucleated cell count times % of all types of nucleated erythrocytes is absolute number of nucleated erythrocytes per cu mm Values corresponding to mild moderate and severe erythrocytic hypoplasia are 2 000 to 4 000 500 to 2 000 and < 500 respectively

this therapy should be given twice daily, and supplemented in 48 hours with 500,000 units of penicillin G, given intramuscularly, twice daily if symptoms have not dramatically improved The dose of penicillin G should be doubled every 48 hours until rapid improvement is apparent This dose should be maintained until at least one week after complete healing of ulcerations and disappearance of all evidence of infection

The prophylactic dose should be continued until a definite upward trend of the neutrophils in the mild hypoplasia range is evident

The only effective therapy for thrombocytic hypoplasia is fresh (not over six hours old) blood transfusions given every six hours until clot retraction begins in one hour. Transfusions should be repeated as often as necessary to maintain some clot retraction. In severe cases this may involve daily transfusions for long periods of time. Blood from patients with high thrombocyte counts, such as occur in polycythemia vera, is advantageous when available. If plethora or erythrocytosis develops because of the much longer life span of the erythrocytes, the transfusions may be preceded by withdrawal of a volume of blood equal to that to be administered. Negligible numbers of thrombocytes are removed by such a procedure because of their short life span. The various methods of concentrating thrombocytes are as yet not very practical in any but the largest urban centers. Clot retraction tests must be repeated daily to control adequately this type of therapy.

Great care should be exercised to preserve veins by skillful venipunctures, rather than by cutting down on the vein if it can possibly be avoided, since the need for frequent transfusions may persist for many months. When venipuncture is impossible, blood can always be given through a marrow aspiration needle inserted into the marrow cavity 1 cm below the iliac crest, with the patient lying on the opposite side. Time, money, and veins should not be wasted by giving calcium or vitamin K preparations. The latter are of value only in patients with hypoproliferative anemia of less than 50% of normal, and no known bleeding tendency is benefited by calcium therapy. Extreme care should be used in the typing and crossmatching of blood in these patients who will usually need many transfusions. An Rh negative patient must not receive Rh positive blood. If intracranial bleeding or serious bleeding elsewhere begins, it is probably justifiable to give blood before the usual serologic tests for syphilis have been completed, for should they be positive, adequate penicillin therapy can be given, and the risk of fatal hemorrhage is far greater than the risk from possible transmission of syphilis. Every minute counts under such circumstances. Erythrocytic hypoplasia occurring alone is usually readily controlled by one transfusion every week or 10 days.

These measures are the only ones of proved value in treatment of these syndromes. If the patients can be kept alive long enough, spontaneous recovery will usually occur. The severer the marrow damage, the longer this may require. Sometimes it is a matter of many months or even several years. Patients with milder forms may recover in the course of a few days or weeks.

A trial of cortisone or corticotropin therapy may be justifiable, but sufficient evidence is not available to establish its value.

Cobalt chloride, 50 mg, three times daily after meals, prepared from the chemically pure reagent in aqueous solution, has proved effective in other types of erythrocytic hypoplasia.

There is no statistically sound evidence that pentnucleotide or yellow bone marrow has accomplished anything in these diseases, their intramuscular injection leads to additional portals of entry and sites of lowered resistance to infection.

SUMMARY

Some risk of drug induced hypoplasia is unavoidable. Drugs that are known to carry a greater risk than the disease for which they are given should never be administered. Simple tests are available that will detect the syndromes. According to present knowledge, recovery depends on prompt recognition of the hypoplasia, immediate discontinuance of the causal agent, precautions to prevent its ever being given again to the same person, and use of the known effective measures in controlling infection, bleeding, and anemia until spontaneous cell division begins again in the marrow.

Much remains to be learned about the relative risks of the different agents, the mechanism of production of these diseases, and their proper therapy. Accurate and complete reporting of all such cases to the Council on Pharmacy and Chemistry of the American Medical Association will greatly facilitate the accumulation of such knowledge.

REPORT TO THE COUNCIL

The Council has authorized publication of the following report from the Committee on Pesticides

R. T. STORMONT, M.D., Secretary

The selection and establishment of nonproprietary names for chemicals is a little-known and often unappreciated task undertaken by certain groups in this country and abroad. Substantial gains in simplifying the naming of drugs and pesticides have been made, but these have been accomplished with difficulty. Many of the problems which still beset nomenclature groups stem from a lack of understanding of the value of such names to the public and to the professions.

The Committee feels that a review of the history of this practice, which concerns the value and significance of generic names for chemicals and current problems particularly as they relate to pesticide nomenclature, has long been overdue. The following report which is the tenth in a series of published statements by the Committee on Pesticides, has been prepared for this purpose. Information on previous reports may be obtained from the Committee office.

BERNARD E. CONLEY, Secretary,
Committee on Pesticides

USE AND ABUSE OF GENERIC (COINED COMMON) NAMES FOR PESTICIDES

One of the major impediments in the advancement of scientific knowledge is the confusion resulting from the multitude of names that exist for a particular chemical. A compound that has become familiar to the public may be identified by a chemical name, a common or generic name, an official name, trade, brand or proprietary names, or a popular or nonproprietary synonym. The growing number of compounds and the variety of their designations are overwhelming to all but those with sufficient time and compelling interest to keep abreast of current terminology.

Certain names are justified, and each type of nomenclature has its own strong adherents. For example, many believe that chemical names make unmistakably clear the structure and composition of a compound. Such names are accurate and descriptive, nevertheless, they have universal meaning only to chemists and certain other specialists. To the technically untrained or to those in other scientific pursuits, chemical descriptions are frequently too cumbersome to use and too difficult to remember. In the early use of a new, complex substance, several chemical descriptions may appear in the literature, which may contribute to confusion among users and result in mistakes in use and in treatment of poisoning. Many chemical names are so unwieldy that laboratory nicknames compounded from initials of the component groupings in the substance have become popular. Some abbreviated designations such as BAL, DDT, TNT, and 2,4 D are so firmly established in the public consciousness that a change to a more descriptive name is now a formidable problem. The difficulties engendered by an increasing use of trivial and trademarked initials, numbers, or combinations of the two should be obvious to all.

Proprietary, brand, or trademarked names for chemicals are subject to similar limitations. Although trade names are necessary and useful tools of our competitive system, they have a tendency to conceal rather than to reveal the nature of the product. The myriad of fanciful names, which are trademarked for preparations containing a widely accepted chemical, pre-dispose prescribing and use by name rather than by nature of the compound and action desired. Labeling problems, confusion with names for unrelated and sometimes more dangerous preparations, and the exacting requirements of scientific literature preclude dependence solely on proprietary names as a means of identification. This has led to the coming of generic names as a direct and simple means of identifying the chemical compounds in commercial preparations. An estimate of their value to manufacturers and consumers alike can be gained from the history and experience of the procedure in this country.

HISTORY

One of the first, if not the initial, organized attempts to standardize the popular nomenclature of new chemicals was undertaken in 1911 by the Council on Pharmacy and Chemistry. Realizing the need for a common name for the chief constituent in the various brands of the blood pressure raising principle of the adrenal glands, the Council adopted epinephrin(e) as such a term. Further impetus to the Council's action was provided by the Federal Trade Commission in 1917. In carrying out the provisions of the Adamson Act, the Commission licensed American firms to use U S patents on certain synthetic drugs owned by German citizens. However, it required all licensees to use generic designations for the article Arsphenamin(e), barbital, cinchophen, and procain(e) were the common names required to be used in association with the drugs trademarked respectively as Salvarsan, Veronal, Atophan, and Novocain.

The next significant step in the medical employment of generic names occurred in 1920 when a prominent pharmaceutical firm began using short, coined, nonproprietary names

nature. World War II fostered a technologic revolution in the pesticidal chemical industry. The industry's growth and increased influence, plus a rise in the number and complexity of its products, focused attention on the advantages of having short, common names that technicians and users alike could conveniently remember. This prompted various public health and agricultural agencies to consider the use of coined, common names for pesticides.

In April, 1947, the newly formed Interdepartmental Committee on Pest Control, a group composed of representatives of the various departments of the federal government interested in pest control, approached the Council on Pharmacy and Chemistry concerning the development of acceptable, nonproprietary, common names for new economic poisons. The Council agreed to collaborate with the Interdepartmental Committee for the purpose of unifying and standardizing generic name selection for chemicals used as drugs, as pesticides, or interchangeably for both purposes. The relationship between the Council and the Interdepartmental Committee existed on a direct, collaborative basis for three years, then the Committee

TABLE 1—Representative Names for Pesticidal Chemicals Used as Economic Poisons

Generic Name	Chemical Name	Trade Names *	Other Names and Synonyms	Major Uses
Aldrin	1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4,5,8-dimethanonaphthalene	Octalene	Compound 118	Insecticide
Allethrin	dl 2-Allyl-4-hydroxy-3-methyl-2-cyclopenten-1-one esterified with a mixture of <i>cis</i> and <i>trans</i> -dl-chrysanthemum monocarboxylic acid	Pyresyn	Allyl etherin Synthetic pyrethrins	Insecticide
Dieldrin	1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octa-hydro-1,4,5,8-dimethanonaphthalene	Octalox	Compound 497	Insecticide
Methoxychlor	1,1,1-Trichloro-2,2-bis (p-methoxyphenyl) ethane	Marlate	DMDT Dianisyl analogue of DDT	Insecticide
Parathion	0,0-Diethyl-0-p-nitrophenyl thiophosphate	Aphamite Phoskill Kilphos Corothion Paraphos Genlthion Penphos Mackothion Vapophos Flantthion, and Thiophos	Compound E 60, Compound 312 ² DPP DNTP AAT	Insecticide
Toxaphene	Chlorinated camphene (67-69% Cl ₂)	Phenatox Penphene Gy Phene Terpene Phenacide, Toxakill Kilphene Chlorphene and Alitox	Compound 30,6	Insecticide
Warfarin	3-(α -Acetylbenzyl)-4-hydroxycoumarin	Dethmor Rat-deth and Ro-deth	Compound 42 WARF Compound 42	Rodenticide

* The list of trade names, other names, and synonyms is not intended to be complete but is given to illustrate the complexity of the nomenclature.

in connection with its trademarked names. Products were marketed under the trade name followed by the statement "brand of —, a nonproprietary name." The generic names were coined by the firm and accepted by the Council on Pharmacy and Chemistry as nonproprietary synonyms for inclusion in *New and Nonofficial Remedies*. In several instances, the coined name ultimately became the official name for the drug by virtue of its adoption by the United States Pharmacopeia.

The celebrated 'aspirin' and 'cellophane' court decisions further stimulated manufacturers to use generic names in conjunction with trade names. In both cases, it was ruled that the firms lost their trademark rights to 'aspirin' and 'cellophane' because the names had become accepted as popular designations for products represented by these names and, therefore, were not associated in the public mind as trade names. The pharmaceutical industry, as a group, was the most sensitive and immediately responsive to the legal precedents that these decisions established. As a consequence, an overwhelming majority of the manufacturers of prescription chemicals cooperate with the Council in the selection of generic nomenclature for drugs.

The need for uniform and universally recognized generic designations for pesticides has been slower to develop. Until World War II comparatively few and relatively simple inorganic and organic compounds were introduced and used at a rate sufficient for users to become acquainted with their

on Pesticides was formed, and it assumed the responsibility for the Council's part in this public service activity.

A list of common names for pesticidal chemicals adopted by the Interdepartmental Committee, which have been concurred in by the Council or the Committee on Pesticides, is presented in table 1. A list of similar names for pesticidal chemicals used as therapeutic agents, which have been adopted by other recognized groups here and abroad, is presented in table 2.

GUIDING PRINCIPLES

The following basic principles have been adopted and employed by the Council on Pharmacy and Chemistry, the Committee on Pesticides, and the Interdepartmental Committee on Pest Control in the consideration of generic names for chemicals.

Type of Names Acceptable—Names that are not in conflict with recognized proprietary or nonproprietary names in the same or other fields of commerce are acceptable. Proposed name should be short and distinctive in both sound and spelling and should avoid confusion with or encroachment on those already in use. Initials and numbers, alone or in combination as terminal designations, are considered unacceptable. When practicable, common names may conform to accepted scientific terminology, however, rigid conformity to chemical, biological, or other rules of nomenclature, to the exclusion of

practical considerations pertinent to the class of compounds involved or the major users affected, is not intended

Types of Compounds Eligible—Eligible compounds are those that have been defined by the selecting agency identified with the field of commerce in which principal use of the chemical may be expected. The name should apply to the pure basic chemical to avoid multiple and dissimilar names for salts, esters, isomers, homologues, dosage forms, and other variations of the parent compound. When a compound is not sufficiently well known, when it is not widely used or only holds promise of use, or is otherwise unsuitable for identification by a coined, common name, selection may be deferred or rejected until conditions warrant reconsideration.

Nature and Time of Application—Proposals for common names may be initiated by manufacturers, formulators, distributors of the basic chemical, or recognized noncommercial organizations interested in the proper utilization of the substance. The style of application varies with the selecting agency, which is guided by the needs of those who will ultimately use

further limited. It is, therefore, of utmost importance that the various problems of generic name selection be thoroughly understood.

CURRENT PROBLEMS

The trend toward trademarking names that are the same or nearly the same as accepted chemical and generic designations is one of the more highly detrimental of current practices. It is a problem common to pesticides as well as to drugs. Evidence of this condition is the misappropriation of the coined, common names lindane, chlordane, and warfarin, which have been registered as proprietary names outside the country of their origin. These acts not only preclude the general use of otherwise acceptable popular names in the countries where pirating occurs but they also contribute to misunderstanding and confusion in foreign literature. Aside from etymological difficulties, they impose unnecessary legal hardships on exporters and international brokers of pesticidal chemicals. In addition, the unethical practice of utilizing names familiar to one group of chemicals and applying them to sub-

TABLE 2—Representative Names of Pesticidal Chemicals Used as Therapeutic Agents*

Official or Generic Name	Chemical Name	Trade Names	Other Names and Synonyms*	Major Uses
Butoxyronoxyl U S P	1 2H Pyran-6-carboxylic acid 3,4-dihydro 2,2-di methyl-4 oxo butyl ester	Indalone		Insect repellent
Chlorophenothane U S P	1 1 1 Trichloro 2 2 bis (p-chlorophenyl) ethane	Neocid	DDT Dicophane B P	Pediculicide
Dibutyl phthalate B P C			DBP	Insect repellent
Dimethyl phthalate U S P			DMP	Insect repellent
Ethohexadiol U S P	2 Ethylhexane 1 3-diol	612	Rutgers 612	Insect repellent
Gamma benzene hexachloride N N R (Hexacide I Ph [proposed])	Gamma isomer of 1 2 3 4 5 6-hexachloro cyclohexane	Getane Kwell Neo scabicide Sarcoptan	Lindane GBH Hexleldum N F N Gamma BHO B S I	Scabicide
Hexastigilium I Ph (proposed)	Hexamethyl tetraphosphate		HFTP	Anticholin esterase agent
Isobornyl thiocyanacetate technical N N R		Thanite		Pediculicide
Nitrostigilium I Ph (proposed)			Parathion †	Anticholin esterase agent
Pyrethrum N F		Pyroclde	Kenya flowers Insect powder	Scabicide

* References are made to drugs accepted in the United States Pharmacopoeia (U S P) National Formulary (N F) British Pharmacopoeia (B P), British Standards Institution (B S I) British Pharmaceutical Codex (B P C) New and Nonofficial Remedies (N N R) International Pharmacopoeia (I Ph) and Nordisk Farmakopoeia (N F N) of the Scandinavian Pharmacopoeia Council.

† See table 1

it. In general, information on the physical and chemical nature, mammalian toxicity, and demonstrated uses of the compound are required. Data on existing trade names, laboratory synonyms, and related nontechnical items may be required. Common names should be proposed prior to commercial introduction of the chemical. The final selection is based on cooperative consideration by various industrial, scientific, and professional organizations who share a common interest in the employment of the chemical.

Ingenuity is required to coin generic names that are short, distinctive, and not in conflict with terms already in use. Two systems of nomenclature have been used on an organized basis for this purpose. The first system employs pseudochemical terms, which suggest the nature and structure of the compound. Benzene hexachloride, borax, and phenobarbital are examples. The second method utilizes fanciful terms, which bear biological, historical, or less tangible relationships to the chemical to which it is applied. Dieldrin, nicotine, and penicillin are illustrations of this approach. Both techniques are open to objections, one of the most important is the tendency for names to become multisyllabic as the possibilities for selection diminish. Unfortunately, this is an inevitable consequence of scientific accomplishment. As the volume of new and useful compounds expands, the number of acceptable two or three syllable word combinations decreases. If distinctiveness in sound and spelling are additional requirements, the choice is

stances of another classification with only minor modifications in spelling is of little consequence at the present, but it can certainly grow if the increasing demands and decreasing possibilities for new names continue.

The establishment of a unified system of nomenclature is the keystone on which rest all educational efforts to extend to the public the benefits of new advances. The development of generic names for chemicals should not be undertaken in a manner that creates further confusion nor should it be in conflict with legal or other requirements of the public interest. It is exceedingly difficult, however, to coin common names that do not infringe or otherwise encroach on proprietary or nonproprietary names in various fields. For this reason, it is sometimes necessary to tolerate more than one nonproprietary designation for a given chemical with multiple uses. When such a situation exists, it is not always practical or feasible to substitute a new name for existing names that are widely accepted in different fields of commerce or in various parts of the world. A more convenient and practical solution is to use interchangeably the adopted nonproprietary names as accepted synonyms for the chemical in the country or technical field in which they are not now officially recognized. This would adjust an otherwise confusing situation and universalize scientific language. Table 2 lists chemicals for which this would be advantageous.

Intranational and international agreement on terminology can minimize the frequency of these occurrences and facilitate suitable compromise. Agreement can come only through co-

operation with and appreciation for the peculiar needs of the various groups served by each of the official and professional organizations responsible for formulation of generic names. A greater exchange of information, standards, proposed terms, and other pertinent data by responsible agencies here and abroad would assist in creating the desired accord. The Committee hopes that greater consideration will be given to this concept in the future.

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

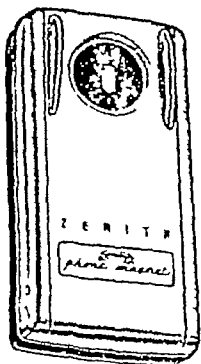
APPARATUS ACCEPTED

The following additional products have been accepted as conforming to the rules of the Council on Physical Medicine and Rehabilitation of the American Medical Association for inclusion in Apparatus Accepted. A copy of the rules on which the Council bases its action will be sent on application.

RALPH E. DE FOREST, M.D., Secretary

Zenith Hearing Aid, Model Regent

Zenith Radio Corporation, 5801 Dickens Ave., Chicago 39



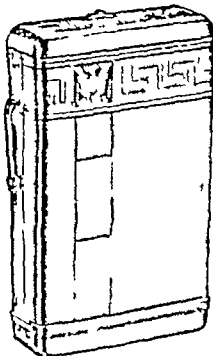
Zenith Hearing Aid
Model Regent

The Zenith Hearing Aid, Model Regent, is an electronic instrument with three vacuum tubes powered by a 1.5 volt A battery and a 22.5 volt B battery. It measures 113 by 57 by 22 mm and weighs 191 gm including batteries, receiver, and receiver cord. The tone control and an off-on switch with volume control are located at the upper corners. A gain control and additional control for power output are located inside the instrument.

A magnetic receiver for air conduction is provided and telephonic pickup is an intrinsic part of this instrument. By placing the receiver of the telephone near the lower portion of the hearing aid case and adjusting the switch, it is possible to pick up telephone conversations directly by electromagnetic radiation instead of picking up sound by vibrations from the air about the telephone receiver. This eliminates some extraneous noise.

Otarion Hearing Aid, Model H 1, Custom "5"

Otarion, Inc., 4757 N. Ravenswood Ave., Chicago 40



Otarion Hearing Aid
Model H 1

The Otarion Hearing Aid, Model H 1, Custom 5 is a five tube instrument requiring one 1.5 volt A battery and one 30 volt B battery. It is intended for the use of patients with rather severe hearing losses and has a maximum acoustic output as high as 125 db for frequencies under 2,000 cps. A special circuit protects the user from the excessively loud sounds that might otherwise result from such amplification.

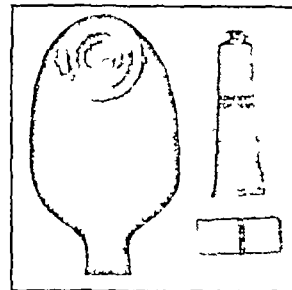
The body of the instrument measures 102 by 63 by 22 mm and weighs 142.5 gm. With batteries, ear phone, and receiver cord the total weight is 217 gm. The volume control is combined with the on-off

switch. There is a tone control on the outside and a power control inside the instrument, accessible through a crescent shaped opening.

Torbot Ileostomy Outfit

The Torbot Company, 284 Elmwood Ave., Providence 7, R. I.

The Torbot Ileostomy Outfit is designed to be worn by patients after surgical operations that result in a discharge of liquid intestinal contents from a fistulous opening. It consists essentially of a rubber bag and a plastic ring. The rubber bag has two openings, the lower one being used for the removal of intestinal contents. The upper opening is maintained in place over the stoma and held open by a flange that encircles the central opening of the plastic ring. Metal fastenings on the ring connect it with an elastic belt. An adhesive compound is provided to help maintain the position of the ring and to make the connection between ring and skin both water tight and air tight. The complete outfit includes two rubber bags, two rings (perforated disks), translucent plastic, elastic belt, spring and hook (for use in drying bag after cleansing), rubber bands (to close lower opening) and a tube of adhesive compound.



Torbot Ileostomy Outfit

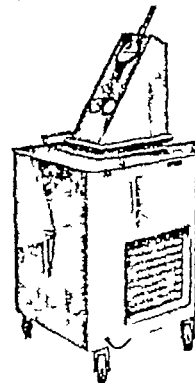
The manufacturer considers the use of the adhesive compound essential to insure an air tight and water tight contact of the outfit with the skin about the stoma. Evidence obtained by the Council showed that this adhesive is harmless if time is allowed after each application for the solvent to evaporate. It is understood that users will be properly instructed on this point.

Ohio Oxygen Tent, Model 90A

Ohio Chemical & Surgical Equipment Co. (A Division of Air Reduction Co. Inc.), 1400 E. Washington Ave., Madison 10, Wis.

The Ohio Oxygen Tent, Model 90A, is a device for administering oxygen to patients in bed. It consists of a canopy of transparent plastic and a cabinet, mounted on casters for cooling and circulating the oxygen. The cooling and circulating mechanism requires 50 to 60-cycle alternating current at 115 volts and it draws 630 watts. The crated tent measures 140 by 64 by 64 cm (55 by 25 by 25 in.) and weighs 89 kg (265 lb). This shipping weight includes the regulator and tent hood.

From a source acceptable to the Council, evidence was obtained indicating that oxygen concentrations exceeding 50% could be obtained under this tent with an oxygen flow of 8 liters per minute.

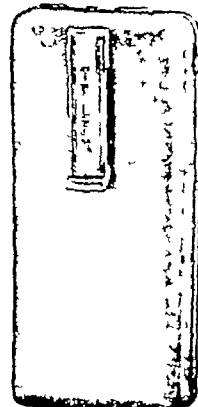


Ohio Oxygen Tent
Model 90A

Telex Hearing Aid, Model 953

Telex, Inc., Telex Park, St. Paul 1

The Telex Hearing Aid, Model 953, is an electronic instrument utilizing three vacuum tubes and requiring one 1.5 volt mercury type A battery and one 30 volt B battery. A magnetic receiver for air conduction is provided. The instrument measures 92 by 45 by 27 mm and weighs 156.7 gm with batteries, receiver, and receiver cord.



Telex Hearing Aid,
Model 953

THE JOURNAL

OF THE AMERICAN MEDICAL ASSOCIATION

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PORTRAYAL OF PHYSICIANS IN TELEVISION AND RADIO ADVERTISING

THE JOURNAL has received many complaining letters from physicians and others who resent the present trend in advertising circles to feature stethoscopes, white coats, and medical claims in advertising programs. They assert this is a cheap attempt to mislead the audiences into believing that the claims have been proved medically. They also claim, and there seems to be an increasing accumulation of evidence to support this belief, that most of the audiences have been exposed to so much of this drivel that there is not only suspicion or even disbelief but actual resentment when programs featuring such advertising are offered. At least some physicians are so disturbed that they have been known to go out of their way to explain to patients, and sometimes to larger groups, the nonsense involved in such obvious deception. While advertisers may claim that the medical profession makes up only a small part of the total population, they should not forget that the doctors' voices can be heard in ever-widening circles and that the public is not so lastingly gullible as some advertisers seem to believe.

At the last meeting of the American Medical Association, its House of Delegates was asked to consider a resolution on this subject from a state medical association. After careful consideration the House adopted a report from a reference committee that recommended study by the Board of Trustees, a meeting of mutually interested parties in the radio and television industry, and the consultation of county and state medical societies with local radio and television stations to effect solutions for advertising problems that affect the medical profession.

This action of the House speaks for itself, and it should be carefully studied by all who are interested in this subject. Radio and television provide remarkable outlets for entertainment and educational programs. Their effective-

ness is applauded by all, and it is unfortunate that this admiration should be diluted by criticism that could be avoided, especially when the criticism is based on actions originating outside of this industry.

HEMODIALYSIS IN THE TREATMENT OF BARBITURATE POISONING

Barbiturate poisoning is usually treated by using various measures to maintain life until the drug can be either excreted or metabolized. Recently, Kyle and associates¹ examined the possibility of removing this toxic substance from patients by use of the artificial kidney, hemodialysis has already been suggested for bromine² and acetylsalicylate³ intoxication. A toxic substance must not be too firmly bound to protein in the body if it is to be removed by hemodialysis, and the equilibrium between the bound and free drug must be readily established. In this manner the free barbiturate is constantly being removed by the dialysis. Evidence that only a portion of the circulating barbiturate is in the bound form has been presented earlier by Brodie and his co-workers.⁴ Kyle and associates have noted that, when patients who were being treated by the artificial kidney for renal disease were given phenobarbital prior to the dialysis, 66% of the administered drug was found in the dialysis fluid. Under similar conditions a patient lost 18% of a given dose of amobarbital (Amytal) in the dialysis fluid. For the purpose of comparison, normal persons without kidney disease were given equivalent amounts of the same barbiturates, and in the same period of time (2.5 hours) they lost 4% of the phenobarbital and 0.5% of the amobarbital in the urine, the low recovery of the amobarbital being attributed to the fact that it is metabolized in the body. This would indicate that hemodialysis is 16 times more effective than the kidney for removing phenobarbital and 36 times more effective for amobarbital.

The artificial kidney was employed in two cases¹ of severe barbiturate poisoning, one due to the ingestion of an unknown amount of pentobarbital (Nembutal) and the other to the ingestion of 10 gm of amobarbital sodium. Both patients arrived at the hospital in a comatose state and were unresponsive to all stimuli. In the five hour period before dialysis the first patient excreted 30 mg of barbiturate in the urine as compared to the loss of 745 mg of the drug in the dialysis bath of the artificial kidney during an identical period. Eight hours after dialysis the patient regained consciousness and made an uneventful recovery. The second patient began to respond to painful stimuli after three and a half hours with the artificial kidney, became completely conscious 16 hours after dialysis and had an uneventful recovery. During the four hour period prior to dialysis she lost 10 mg of barbiturate in the urine compared to 300 mg of the drug removed by the hemodialysis in the same time interval. In this case, 30 times as much barbiturate was removed by dialysis as was excreted by the kidney. Patients with barbiturate poisoning tolerate the hemodialysis well and show an improvement in clinical status during the dialysis.¹ In addition to removal of barbiturate as shown by an increased amount of the drug in the dialysis liquid there is also a fall in blood barbiturate level.

1 Kyle L H and others. The Application of Hemodialysis to the Treatment of Barbiturate Poisoning. *J Clin Investigation* 32: 364-371 1953

2 Merrill J P and Weller J M. Treatment of Brominism with the Artificial Kidney. *Ann Int. Med* 37: 186-190 1952

3 Doolan P D, Walsh W P, Kyle L H and Wishinsky H. Acetylsalicylic Acid Intoxication. Proposed Method of Treatment. *J A M A* 146: 105-106 (May 12) 1951

4 Brodie B B and others. The Fate of Thiopental in Man and a Method for Its Estimation in Biological Material. *J Pharmacol & Exper Therap* 98: 85-96 1950

Leonards and Sunshine⁵ have recently reported the removal of barbiturates from the blood of experimental animals by the use of the artificial kidney. Dogs were given sodium pentobarbital, and the dialysis procedure was begun one to two hours later. It was noted that the animals that received larger doses of the drug required a longer period of dialysis before spontaneous movements occurred (e.g., a dog that received 520 mg had to be treated for three to four hours, while those that were given 800 mg required six hours). These investigators found that 13 to 25% of the administered drug was removed by the hemodialysis and less than 5% was found in the urine. The artificial kidney decreased by two to four hours the time necessary for the blood barbiturate level to fall to 1.5 to 2.5 mg per 100 ml, a blood range where spontaneous movement began. It was concluded that hemodialysis may have only a limited use for cases of intoxication with this barbiturate.

At present, dialysis with the artificial kidney is a safe procedure, and, since use of this procedure is becoming more widespread for various types of renal insufficiency, equipment and trained personnel are becoming more available. Thus, with further investigation, the use of the artificial kidney may become one of the active means of treating severe barbiturate poisoning.

DANGERS OF TREATY LAW STILL EXIST

At its meeting in New York City during the first week in June the House of Delegates of the American Medical Association reiterated its endorsement of "the principles embodied" in the Bricker Resolution and urged the active support of the entire medical profession.

On June 4, 1953, a compromise resolution was adopted by the Senate Judiciary Committee by a vote of 8 to 4. The resolution agreed on included some of the provisions contained in S J Res 1, 83rd Congress, introduced by Senator Bricker for himself and 63 other senators and some of the language contained in S J Res 43, 83rd Congress, introduced by Senator Watkins for the American Bar Association. One of the original provisions of S J Res 1 that drew much criticism has been eliminated. It would have prohibited a treaty from allowing "any foreign power or any international organization" from interfering with constitutional rights of United States citizens within the United States "or any other matter essentially within the domestic jurisdiction of the United States." It was felt that such a provision might be construed to outlaw such matters as a treaty for international control of atomic weapons. It was also felt that it would be too difficult to determine which matters were "essentially within the domestic jurisdiction" of the United States.

The provision of the original version of S J Res 1 pertaining to executive agreements was also changed. Originally the resolution would have prevented the President from making any executive agreements with foreign or international authorities until Congress had laid down the rules for making them. Under the revision, the President could make agreements without supervision but Congress would have the power to regulate such agreements.

During the hearings before the Senate Judiciary Committee, various witnesses appeared on behalf of the administration in opposition to these resolutions. Secretary of State Dulles testified, in part, that the resolutions would subject the current day-to-day conduct of foreign affairs to "impediments which might be stifling" and he urged that "these far-reaching proposals" first be given thorough study by a special group made up of members of the Congress and the legal profession. He also told the Senate committee that the amendments proposed were now "unnecessary" and "dangerous" and that fears of abuse of the treaty power had become "hypothetical." It is interesting to note that only a year before his appearance before the Senate committee Dulles stated in an appearance before a regional meeting of the American Bar Association "The treaty making power is an extraordinary power liable to abuse. Treaties make international law and also they make domestic law. Under our Constitution treaties become the supreme law of the land. They are indeed more supreme than ordinary laws, for congressional laws are invalid if they do not conform to the Constitution, whereas treaty law can override the Constitution. Treaties can cut across the rights given the people by the constitutional Bill of Rights."

Irrespective of the reasons for this change in the official position of the administration, it seems clear that so long as legitimate reasons for doubt exist there is no way to insure that the rights of Americans cannot be bartered or given away short of action by the Congress. Certainly, as long as the machinery exists for the formulation of covenants such as the Minimum Standards of Social Security adopted a short time ago by the International Labor Organizations, these "legitimate reasons for doubt" are justified. The medical profession should therefore restate as emphatically as possible its endorsement of S J Res 1, 83rd Congress, and urge its adoption by the Congress at an early date.

DRUG REACTIONS

Elsewhere in THE JOURNAL (page 816) is a report to the Council on Pharmacy and Chemistry on hypoplastic anemia and related syndromes caused by drug idiosyncrasy, which provides material of value to all physicians who administer drugs. Of special interest is the creation of a system whereby instances of dangerous reactions following drug therapy can be reported to the Council's Committee on Research. The report in THE JOURNAL is part of a program by which the committee will attempt to investigate the causes and incidence of hypoplastic anemias in the United States. Already a Subcommittee on Blood Dyscrasias has been appointed to provide a plan of study for analysis of reports of hypoplastic anemia. The committee and the Council hope that these and other studies that eventually will ensue will result in information and suggestions of value for practicing physicians. In the meantime, all physicians are urged to report immediately all incidents of untoward drug reactions to the Committee on Research, American Medical Association, 535 N Dearborn St., Chicago 10.

⁵ Leonards J R and Sunshine J. Removal of Barbiturates from the Blood by the Artificial Kidney. *Fed Proc* 12:237-238, 1953.

THE PRESIDENT'S PAGE

A MONTHLY MESSAGE

In trying to compose my first article for this page, I find it difficult to collect my thoughts. I am still trying to recuperate from the most arduous and exciting week of my life. Both Mrs. McCormick and I enjoyed the opportunity of meeting so many of you individually at the reception that followed the inaugural ceremony in the Commodore Hotel. It was an experience that we shall always treasure. My only regret is that it was physically impossible to meet and shake hands with every doctor and every member of the Auxiliary who attended this, the greatest of all A. M. A. conventions. In the year ahead, as I attend the various local and regional meetings, I look forward to the opportunity of meeting many of you again and becoming personally acquainted with many other A. M. A. members.

As I look back over the accomplishments of the American Medical Association in the past 106 years, I find the temptation toward complacency very great. There are too many doctors who are passive and who take no part in the effort to solve the problems of medicine. It is true that to this date we have been successful in withstanding the onslaughts of the social planners who would impose assembly line medicine on the nation, without regard to the quality and the quantity of such medical service, but the battle is not over. The Congress of Industrial Organizations, under the leadership of Walter Reuther, is still probing for cracks in the dike of common sense with a view toward loosing a new flood of propaganda that would drown the sound reasoning of opponents to socialized medicine. Only last December, at its annual convention, the CIO advocated the welfare state as follows: "The CIO reaffirms its support for a national health program which will provide the people of our nation with needed medical services, facilities and personnel. Such a program must include expanded federal aid to medical research, to state and local public health units, to medical and nursing education and medical cooperatives, to maternal and child health care, and to an effective mental health program. It must also include a system of national health insurance."

CIO President Reuther extended his personal blessing to the program by stating that some form of federal health insurance seems to me to be the only adequate answer. Perhaps the key to the CIO's intense desire for a national health insurance program lies in this sentence from an article published recently in the "Economic Outlook": "Contributions would be in proportion to people's ability to pay, and unions could bargain to have employers carry the full cost."

Not only must we remain alert to the danger of a continued and intensified campaign for assembly line medicine but we must continue to bring to the people the true story of American medicine and its vital concern with the health of the nation. There is no need for physicians to be apologists for their profession. By their own actions in their own offices they can do the best job of public relations imaginable. A little extra care in the scheduling of appointments can eliminate much dissatisfaction among patients. A sensible attitude toward fees goes a long way toward creating good will. And let us remember that people do not always get sick during convenient daytime hours, that the doctor's convenience and comfort are always secondary to the needs of patients insofar as the doctor is physically able to perform his or her duties.

By vigorous self-application to the task, the great majority of honest, ethical practitioners can nullify the charges of misdeeds—aimed at a very few—that have tended to reflect on the entire profession. We should be merciless in eradicating from our ranks the small minority of "doctors" (and I use the quotation marks advisedly) who befoul the honorable traditions

and principles of medicine that have existed since before the days of Christ. Every medical society in the nation should have a strong and fearless mediation committee to hear the complaints of patients. They should not be stampeded into witch hunts, but at the same time they must be swift and decisive in their actions when guilt is established beyond a doubt.

I would say that one of medicine's greatest weaknesses at the present time is within the profession itself. On the political scene the honest efforts of the leaders of medicine have recently been heralded as "selling the profession down the river." It has been said that the Association is reputed to have made a deal with the American Legion. As a matter of fact, we are opposed to the treatment of non-service-connected disabilities, except tuberculosis or psychiatric or neurological disorders suffered by veterans who are unable to defray the expenses of necessary hospitalization. Many of us who are members of the Legion recognize in the present program of veterans' care socialism and the fall of democracy. It is an honor and a duty to have served our country, and we should not expect life long support and special privilege because we have defended our country, our homes, and families.

Physicians themselves have prompted much of the unfavorable publicity that has developed throughout the country recently. It would seem that a concerted effort is being made to divide and conquer the profession when now, above all other times, we have a golden opportunity to progress. There is an overriding need for unity. May I stress once again some of my remarks made before the House of Delegates in New York City a few years ago, when we had to close ranks and fight shoulder to shoulder against an immediate threat of compulsory health insurance, we worked as a team. With some of this pressure off, I have noticed a distressing regression toward petty internal wrangling, charges, and countercharges. Constructive criticism has a universally recognized place within any democratic group. But once official action has been taken by the A. M. A. House of Dele-

gates or the governing body of any county or state group I believe we should understand that the democratic process has had its way and the majority has ruled.

This does not mean we cannot continue to work for our personal beliefs. We should work for them in an orderly fashion within the ranks of organized medicine, and we should encourage all physicians to work for change in this way. Quiet persuasion can be a potent force. On the other hand, violent charges in the public press and uninformed testimony before Congress are destructive rather than constructive tactics.

And while we strive for this harmony within our own ranks let us not forget that greater participation in civil undertakings by the individual doctor is equally important. Too many physicians have been isolationists within their communities. We cannot expect service clubs, fraternal organizations, P. T. A. groups, church associations, and unions to be interested in our problems if we are not interested in theirs.

The A. M. A. presidency bears with it grave responsibilities. During the coming year I shall need the wholehearted assistance of every member to help me fulfill the obligations of this office. It is only through your cooperation and loyalty that the A. M. A. can continue to advance the ethical standards of American medicine and promote the public health and welfare. I hope only that I shall be able to live up to the high standards set by my predecessor, Dr. Louis H. Bauer, who gave so unselfishly of his time and energy in serving you.



EDWARD J. MCCORMICK, M.D., Toledo, Ohio

ORGANIZATION SECTION

JOINT COMMISSION ON ACCREDITATION OF HOSPITALS

At its meeting on April 19, 1953, in Chicago, the Board of Commissioners of the Joint Commission on Accreditation of Hospitals reviewed the recommendations on surveys of 284 hospitals that had been conducted by field representatives of the American College of Surgeons, the American Hospital Association, and the American Medical Association since Jan 1 1953. The board granted full accreditation to 199 hospitals and provisional accreditation to 46, 38 hospitals were not accredited. These hospitals were informed of their status on or about May 15.

The board reviewed the recommendations of three committees that had been appointed to consider changes in the standards published in the "Manual of Hospital Accreditation." Two significant revisions in the standards were made, one of which will serve to ease the multiplicity of monthly meetings that medical staff members must attend, while the other clarifies and makes more specific the organization and functions of general practice departments in hospitals. In addition, certain regulations were adopted as an interpretation of the standard requiring safety precautions in roentgenology departments.

Medical Staff Meetings—Hospitals whose medical staffs have complained about the need for attending a multiplicity of monthly staff meetings will be pleased to learn of an additional alternative in the standards that will assist in improving the quality of medical care. Monthly meetings of the medical staff were designed primarily to aid the staff in discharging its full responsibility for establishing and maintaining high quality of medical care in the hospital. Such meetings, therefore, should be devoted to the thorough review and analysis of the professional management of all discharged patients. In recent years, in hospitals having departmental organization with well-qualified and highly specialized clinical staffs, importance has been placed on departmental and clinico-pathologic conferences for extensive study of each patient's record. With a program of departmental conferences, meetings of the entire active staff are required quarterly. It was agreed that the sole reason for requiring staff meetings is to insure good medical care and treatment of patients in hospitals. The discussion centered on the question "Are medical staff meetings the best method for accomplishing this?"

In this discussion, the following principles were agreed to:

- 1 The medical staff is responsible for the quality of medical care in the hospital and must accept and assume this responsibility, subject to the ultimate authority of the hospital governing board.
- 2 The medical staff must be a self governing body.
- 3 Staff meetings are held for the purpose of reviewing the medical care of patients within the hospital and not for the presentation of scientific papers or discussions.
- 4 Regular and frequent meetings of departmental staffs to review clinical work are accepted as essential in well-organized hospitals.
- 5 Medical staff meetings cannot be held in conjunction with those of another hospital or with local medical societies.

In addition to the present standards, which require a monthly staff meeting with 75% of the active staff in attendance, or, in well-departmentalized hospitals where departmental meetings and clinico-pathological conferences review the clinical work, a quarterly staff meeting, the following alternative was adopted to insure a thorough review of the medical care practiced in the hospital: (1) an active medical records committee to review the record of every patient discharged from the hospital, (2) an active tissue committee to study all pathological reports in relation to clinical data, (3) an executive committee of the medical staff to review and to take action on the findings of the medical records and tissue committees, and (4) general

staff meetings to inform and to discuss with the entire medical staff the quality of care currently rendered in the hospital.

The approved standard relating to medical staff meetings follows:

'Section A-2-a

(6) Committees The following are required:

'(a) Executive Committee to co ordinate the activities and general policies of the various departments, to act for the staff as a whole under such limitations as may be imposed by the staff, and to receive and act upon the reports of the Medical Record, Tissue, and such other Committees as the medical staff may designate. The Executive Committee to meet at least once a month and maintain a permanent record of its proceedings and actions.

"(d) Medical Records Committee, to supervise and appraise medical records, and to insure their maintenance at the required standard. Such Committee to meet at least once a month and submit to the Executive Committee a report in writing which will be made a part of the permanent record.

"(e) Tissue Committee, to study and to report to the staff, or the Executive Committee of the staff, the agreement or disagreement between preoperative diagnoses and reports by the pathologist on the tissues removed at operation. Such Committee to meet at least once a month and submit to the Executive Committee a report in writing to be made a part of the permanent record."

Section A-2-a

"(7) Staff Meetings The sole objective of staff meetings is improvement in the care and treatment of patients in the hospital. Unless such objectives are met fully by the program set forth (in B 2 a (4)), below, monthly meetings of the staff, not less than twelve in each calendar year, are required. Active staff attendance shall average at each meeting at least 75% of the active staff who are not excused by the Executive Committee for exceptional conditions such as sickness or absence from the community. Each active staff member shall attend 75% of staff meetings unless excused by the Executive Committee for exceptional conditions such as sickness or absence from the community. In addition to matters of organization, the programs of such meetings must include a report of the Executive Committee and be limited largely to the review of current or recent cases in the hospital. Scientific programs not associated with the work of the hospital do not meet this requirement.

'Section B 2-a

(4) Staff Meetings (a) In hospitals where adequate review of the medical work in the hospital is carried out by the Medical Records and Tissue Committees and appropriate study and action is taken by the Executive Committee on not less than a monthly basis, one meeting of the entire Active Staff must be held during each quarter of the year. At such meetings a report of the medical work of the hospital must be presented by the Executive Committee.

'(b) In well-organized and departmentalized hospitals, at least monthly departmental conferences and clinico-pathologic conferences may be substituted for meetings of the entire staff, provided that all of the medical work of the hospital is covered by one or another of such conferences, and further provided that at least one meeting of the entire Active Staff is held during each quarter of the year. At such meetings a report of the review of its medical work of the hospital must be presented by the Executive Committee. The attendance requirements applies at all such meetings (see A-2-a (7), above).

(c) Business or other executive sessions of the staff will be conducted by the Active Staff and other categories of the staff may be excluded.

General Practice Departments The standard which permits elective General Practice departments in well-departmentalized hospitals was changed to read as follows

"A Department of General Practice shall be an organized segment of the medical staff comparable to that of other staff departments with the following limitations

'1) The responsibilities of this department shall be limited to administration and education. It shall not be a clinical service and no patients shall be admitted to the department. If and when desirable, however, the department may be made responsible for conducting the out-patient clinic in whole or in part

"2) Since the Department of General Practice will not have a separate service, the members of the General Practice Department shall have privileges in the clinical services of the other departments in accord with their experience and training, on recommendation of the Credentials Committee. In any service in which any general practitioner shall have privilege, he shall be subject to the rules of that service and subject to the jurisdiction of the chief of the clinical service involved"

EDWIN L. CROSBY, M.D.
Director, Joint Commission on
Accreditation of Hospitals
660 N. Rush St.
Chicago 11

FEDERAL MEDICAL LEGISLATION

Detention of Narcotic Addicts

Congressman Miller (R, Neb.) in H. R. 5422 proposes to authorize the forcible detention of narcotic addicts committed by state courts to U. S. Public Health Service Hospitals until the addicts are cured. The bill would also require those who voluntarily submit to treatment in a U. S. Public Health Service Hospital to take the complete treatment. States would pay the cost for persons committed by state courts. Under the present law, narcotic addicts convicted in federal courts of offenses against the United States may be forcibly detained in a U. S. Public Health Service Hospital until treatment is completed, however, persons who voluntarily submit themselves for treatment and persons committed by state courts cannot be detained against their will. This is identical with S. 1994 (Beall) previously reported. This measure was referred to the Interstate and Foreign Commerce Commission.

Tax Deduction for Annuities

Congressman McDonough (R, Calif.) in H. R. 5452 proposes to permit an annual deduction of amounts up to \$2,400 for the purchase of annuities, pensions or retirement benefits in calculating income tax. The bill was referred to the Ways and Means Committee.

Hospitalization for Dependents of Deceased Members of Coast Guard

Congressman Bennett (D, Fla.) in H. R. 5498 would authorize the Navy to provide hospitalization services for widows and dependents of Coast Guard members if the members die while serving in the Coast Guard when it is a part of the Navy. This was referred to the Committee on Armed Services.

Calculation of Social Security Retirement Rate

Congressman Kean (R, N. J.) proposes in H. R. 5533 to change the method of computing the average monthly retirement benefit by basing such benefits on the best 10 consecutive years of earnings. During the consideration of the waiver of premium for disability legislation in the last Congress, the American Medical Association suggested a similar plan to avoid the necessity of medical determinations in disability cases. This measure was referred to the Ways and Means Committee.

STATE MEDICAL LEGISLATION

California

Bill Enacted.—S. 1349 has become ch. 1034 of the laws of 1953. It amends the Business and Professions Code relating to the use of fictitious names by individual practitioners or partnerships by providing that holders of physicians or surgeons' certificates may practice within the scope of their respective certificates in partnerships or groups of physicians and surgeons provided that after Sept. 30, 1953 no such partnership or group shall be formed or organized under any name except a name that includes the surname of one or more members of the partnership or group followed by the words "Medical Group."

Connecticut

Bill Enacted.—S. J. R. 38 was adopted April 30, 1953. It provides for the appointment of a commission to conduct a study of the establishment of medical, dental, and veterinary colleges on a New England regional basis and to collaborate with commissions in other New England states conducting similar studies.

Florida

Bill Enacted.—H. 1142, became law without approval June 1, 1953. It authorizes the board of county commissioners in counties of a certain size to provide for life and accident hospitalization or annuity insurance or all or any of such insurance for county employees and their families upon a group insurance plan and to enter into agreements with insurance companies to provide such insurance.

Iowa

Bill Enacted.—S. 235 was approved May 22, 1953. It provides that an autopsy or postmortem examination may be performed upon the deceased person by a physician or surgeon whenever the written consent thereto has been obtained in any of the following manners: by written authorization signed by the deceased during his lifetime; by written consent of any party whom the deceased, during his lifetime, designated by written instrument to take charge of his body for burial; by consent of the surviving spouse if there is no surviving spouse; by the consent of an adult child, brother, parent, or sister of the deceased; if none of the above persons are available then by consent of any other relative or friend who assumes custody of the body for burial.

Maine

Bill Enacted.—H. 1274, was approved May 7, 1953. It amends the law relating to blood tests of pregnant women by requiring a blood sample of such women to be submitted to a laboratory for a standard serological test for the determination of RH factors.

Massachusetts

Bills Introduced.—H. 2756 proposes the appointment of a special commission to investigate the question of the establishment of one or more medical schools by the University of Massachusetts and to develop an adequate program of higher education. S. 730 proposes the creation of an unpaid special commission to make an investigation relative to services of physicians for certain permanently and totally disabled persons.

Bill Enacted.—S. 720 has become ch. 437 of the laws of 1953. It amends the general law by defining a place of public accommodation, resort, or amusement as including a hospital, dispensary or clinic operating for profit.

Michigan

Bills Enacted.—H. 1342 has become pub. act no. 95 of the acts of 1953. It provides that no autopsies, postmortems and dissections shall be performed upon the body of a deceased person except by a licensed physician who has been granted written consent therefor by whichever one of the following assumes custody of the body for the purpose of burial: father, mother, widow, widower, guardian next of kin, or person charged by law with the responsibility of burial. S. 1293 has become public act no. 181 of the acts of 1953. It provides for the submission to the voters of a referendum which would abolish the office of coroner and create the office of county medical examiner in any county in which the referendum is approved.

Pennsylvania

Bills Introduced.—H. 779 to amend the law relating to chiropractic, proposes to authorize the licensing of individuals by reciprocity on the basis of a license obtained in other states or the District of Columbia maintaining substantially the same standards for licensure as those which exist in Pennsylvania. S. Serial No. 135 proposes to direct the joint state government commission to make a comprehensive and intensive study of the needs and problems of the aging and the aged.

Wisconsin

Bill Enacted.—S. 346 has become ch. 165 of the laws of 1953. It requires that in cities of a certain size the health commissioner must be a regularly licensed physician or in lieu thereof a person other than a physician with training and experience in public health administration and such individual shall devote his full time to duties of the office and shall not engage in the private practice of medicine or in any other conflicting occupations.

PROCEEDINGS OF THE NEW YORK MEETING

ABSTRACT OF PROCEEDINGS OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION AT THE ANNUAL MEETING IN NEW YORK CITY, JUNE 1-5, 1953

(Continued from page 743)

Report of Council on Constitution and Bylaws

Dr Louis A Buie, Chairman, presented the following report, which was referred to the Reference Committee on Amendments to the Constitution and Bylaws, with the exception of the portion recommending a specific amendment of the Principles of Medical Ethics, which was referred to the Reference Committee on Miscellaneous Business

1 Matters Referred by the House of Delegates—The House of Delegates at its December, 1952, session considered the Johnson Resolutions on Funding of Policies of the House of Delegates These resolutions read as follows

WHEREAS The Board of Trustees has invited the attention of the House of Delegates to a lack of clarity which now exists in the Constitution of the Association whereby an action of the House of Delegates taken in June 1952, was found to be unconstitutional and

WHEREAS The functions of the House of Delegates are (1) to determine the policies of the American Medical Association and (2) to fix dues and assessments and

WHEREAS The control of finances essential to implement specific matters that are the policies of the House of Delegates is not now clearly defined in the Constitution and Bylaws and

WHEREAS It is not the purpose of this resolution to control all financial policies of the Association but simply to define certain prerogatives of the House therefore be it

Resolved That notwithstanding the rights and duties of the Board of Trustees as defined in the Constitution and Bylaws it shall be the duty of the Board to provide sufficient funds within the means of the Association to implement such policies programs and measures as may be from time to time adopted by the House of Delegates and be it further

Resolved That the Council on Constitution and Bylaws be instructed to make all necessary changes needed to attain the purpose of this resolution

The reference committee report, which was adopted by the House of Delegates, referred the matter to the Council on Constitution and Bylaws for implementation and instructed the Council to prepare a report and submit it to the House of Delegates at this session After careful consideration, during which legal counsel was employed, the Council on Constitution and Bylaws prepared the following statement and recommends that it be substituted for the second sentence of Paragraph (A) of Section 4, Chapter XVI

All resolutions and recommendations of the House of Delegates pertaining to the expenditure of funds shall be referred to the Board of Trustees which shall determine if the expenditure is advisable If it is decided that the expenditure is inadvisable the Board shall report at its earliest convenience to the House of Delegates the reasons for its action This procedure conforms to the statutes of the State of Illinois under which the American Medical Association is incorporated

2 Minority Reports of Reference Committees—The members of the Council believe that it is necessary to clarify the method of presenting minority reports and the obligations of reference committee members who wish to make such reports Therefore it is recommended that Section 2 of Chapter XII be amended by the insertion of (A) before the title 'References,' and that the following new paragraph be added

(B) Minority Reports—A member of a reference committee who wishes to make a minority report must refrain from signing the majority committee report and must make his intentions known to the other members of the reference committee while it is in executive session and prior to the presentation of the majority report to the House of Delegates

3 Clarification of Section 3 Chapter XII—The Council recommends that this section be amended to read

Section 3 Organization—(A) Each reference committee shall convene whenever necessary It shall consider business referred to it and shall report to the House of Delegates when called on by the Speaker A majority of the members of each committee shall constitute a quorum

4 Amendments Suggested by the Membership and Records Department for the Purpose of Clarifying the Provisions of the Bylaws Which Pertain to Membership—(1) Add a new Section 6 at the end of Chapter I, as follows 'Section 6 Limitation to One Membership—A member shall hold only one type of membership in the American Medical Association at any one time'

(2) Add to the first paragraph of Section 4, Chapter III, "and provided the request for exemption is transmitted through the constituent association to the Secretary of the American Medical Association" and place a comma preceding these words where a period now appears

(3) Revise subsection (A) of Section 4, Chapter III, to read '(A) A Member for whom the payment of dues would be a financial hardship, by reason of physical disability or illness A member may also be excused from payment of dues because of financial hardship for other reasons, but these must be set forth by the secretary of the member's component society'

(4) Revise subsection (D) of Section 4, Chapter III, to read '(D) A Member temporarily in the Armed Forces may be excused from the payment of American Medical Association dues, regardless of local dues exemption for the period beginning January 1 or July 1 following the date of the Member's entrance into military service'

5 Amendment of Bylaws to Provide Uniform Nominating Procedure for Members of the Standing Committees (Councils) of the House of Delegates—The Council recommends that members of the Standing Committees of the House of Delegates be elected by the House of Delegates on nominations made by the Board of Trustees in a uniform manner for each Standing Committee To attain this uniformity the Council recommends the following amendments

1 Subsection (A), Section 2, Chapter XI, delete the words "on nomination by the President"

2 Subsection (B), Section 2, Chapter XI, delete the words "on nomination by the Board of Trustees"

3 Subsection (C), Section 2, Chapter XI, delete the words "on nomination by the Board of Trustees"

4 Subsection (D), Section 2, Chapter XI, place a period after the word "Members" in the second line of this paragraph and delete the words "each of whom shall serve for a term" and substitute the words "All members shall be elected by the House of Delegates for terms Delete entire last sentence from this paragraph"

5 Subsection (E), Section 2, Chapter XI, delete the words "on nomination of the Board of Trustees"

6 Subsection (F), Section 2, Chapter XI, shall become Subsection (G) without any change

7 Insert new Subsection (F) as follows "At each annual session the Board of Trustees shall present to the House of Delegates two or more nominations for each vacancy in the Standing Committees (Councils) of the House of Delegates"

8 Subsection (E), Section 1, Chapter XV, delete the entire subsection

6 Revision of the Principles of Medical Ethics—At its meeting in June, 1952, the House of Delegates asked the Council on Constitution and Bylaws to study and evaluate the present Principles of Medical Ethics and report back to the House of Delegates its recommendations Since that meeting many individuals and all of the state and county medical

societies have been asked to make specific recommendations for revision of the Principles of Medical Ethics. In response to these requests, numerous communications have been received, most of which have requested clarification, correction, or deletion of existing provisions of the Principles of Medical Ethics. Many have been general in nature and some have made specific suggestions for achieving certain changes. After serious consideration and considerable discussion the Council has decided that it will not offer any recommendation as to textual revision of the Principles during this session of the House of Delegates. It is felt that more information regarding the opinions of the medical profession should become available before basic changes are made, and it is suggested that such opinions can be made available by direct communication or as resolutions presented to the House of Delegates.

7 Proposed Amendment to Principles of Medical Ethics
—At this session an addition is recommended which it is hoped will facilitate the application of all the Principles without changing the structure or the intent of any. In order to achieve this purpose the Council recommends that the House of Delegates adopt a preamble to replace the quotation from Sir Thomas Percival on the first page, which reads as follows: "These principles are not laws to govern but are principles to guide to correct conduct." Also it is intended to replace the Conclusion on the last page, with the following statement:

These principles are intended to serve the physician as a guide to ethical conduct as he strives to accomplish his prime purpose of serving the common good and improving the health of mankind. They provide a sound basis for solution of many of the problems which arise in his relationship with patients with other physicians and with the public. They are not immutable laws to govern the physician. The ethical practitioner needs no such laws, rather they are standards by which he may determine the propriety of his own conduct. Undoubtedly, interpretation of these principles by an appropriate authority will be required at times as a rule. However the physician who is capable, honest, decent, courteous, vigilant and an observer of the Golden Rule and who conducts his affairs in the light of his own conscientious interpretation of these principles will find no difficulty in the discharge of his professional obligations.

8 The Council will continue to study the numerous problems now on its agenda and hopes to provide recommendations, some of which are now under consideration, which will facilitate the usage of the Principles. At this time the Council is rearranging in more logical sequence the chapters, articles, sections, and paragraphs.

The members of the House are urged to study the Principles and to make recommendations in specific language. It is important that these recommendations be spelled out verbatim, so that, if a given sentence or paragraph is not clear and if alteration is required, the Council may consider the specific language which should be utilized. Some of the sections which are controversial and which merit your study are those pertaining to advertising, public information, rebates and commissions, nonsectarianism, and the purveyance of medical service. The Council anticipates that resolutions bearing on the Principles will be presented at this and future sessions of the House of Delegates and that they will be referred to this Council for consideration. Such measures will be helpful and probably will provide an important method of obtaining information which is needed if our desires are to be fulfilled in a manner which will be acceptable to all.

Report of Reference Committee on Amendments to Constitution and Bylaws

Dr. John W. Green, Chairman, presented the following report, which after discussion and amendment was adopted, as amended, the Speaker declaring in each necessary instance that the Constitution and Bylaws were amended.

Your committee has made use of legal talent and advice and information from Drs. Buie and Schiff and Dr. Cunniffe, as well as several other witnesses, on both positive and negative aspects of the report of the Council on Constitution and Bylaws as well as on the resolutions referred to it. I personally wish to thank all members of the reference committee for their advice and experience, guidance and assistance in writing this report.

Your reference committee approves Item 1 of the Council's report and recommends adoption of the proposed amendment

to Section 4, paragraph (A), Chapter XVI, of the Bylaws. (The House adopted a motion to amend the proposed amendment so that the last sentence was deleted from the paragraph and included as a footnote.)

Your committee approves Item 2 of the report of the Council on Minority Reports of Reference Committees and recommends adoption of the proposed amendment of Section 2, Chapter XII, of the Bylaws.

Item 3 of the Council's report, on Clarification of Section 3, Chapter XII, is approved by your reference committee, and the proposed amendment of this section of the Bylaws is recommended for adoption.

Your committee approves Item 4 of the Council's report, on Amendments Suggested by the Membership and Records Department, except subsection "d," which deletes the phrase "may be excused from payment of American Medical Association dues," so that the section will read as follows: "A member temporarily in the Armed Forces may be excused from the payment of American Medical Association dues, regardless of local dues exemption for the period beginning January 1 or July 1 following the date of the member's entrance into the service."

Your reference committee disapproves Item 5 (a) of the Council's report and the proposed amendment of paragraph (A), Section 2, Chapter XI to provide uniform nominating procedure for members of Standing Committees (Councils) of the House of Delegates.

Item 5 (b), (c), (d), (e), (f), and (h) of the report of the Council are approved by your committee and the proposed amendments to Section 2, Chapter XI, are recommended for adoption.

Your reference committee approves Item 5 (g) of the Council's report, with the following revision. After the words, "House of Delegates," add "except the Judicial Council, and further nominations may be made from the floor of the House of Delegates, except for the Judicial Council."

Your committee approves and commends the activities of the Council on Constitution and Bylaws for its work on the revision of the Principles of Medical Ethics, as set forth in Item 6 of its report.

Report of Reference Committee on Miscellaneous Business

Dr. Walter P. Anderton, Chairman, submitted the following report, which was adopted, and the Speaker declared that the Principles of Medical Ethics were amended.

In reference to the report of Dr. Louis A. Buie, Chairman of the Council on Constitution and Bylaws that portion of the report referred to the Reference Committee on Miscellaneous Business, changing the preamble to the Principles of Medical Ethics and combining it with the conclusion, is approved by your committee and recommended for adoption as the preamble to the revision and streamlining of the Principles of Medical Ethics.

Report of the Council on Medical Education and Hospitals

Dr. H. G. Weiskotten, Chairman, submitted the following report, which was referred to the Reference Committee on Medical Education and Hospitals.

The Council on Medical Education and Hospitals wishes to submit a supplementary report to clarify certain questions that have been raised relative to the development and implementation of the revised Essentials of an Approved Internship that were adopted at the Denver session.

Few problems have given the Council as much concern during recent years as have those relating to the internship and its place in present-day medical education and hospital service. That they have also had the attention of the profession at large is evidenced by the number of resolutions bearing on the subject which annually have been presented to the House. The majority of these resolutions were referred to the Council by the reference committees which considered them with instructions that the contents be given thorough study and that a report be made to the House as to progress in resolving the problems involved. During the past five years two committees of the House specifically appointed for the purpose have

reviewed the general problem and have made recommendations relative to its solution.¹ The Council has made every effort over the past several years to implement these recommendations including that relating to the reappraisal of hospitals approved for intern training.

In the belief that a further comprehensive study of the internship was essential, the Council in the spring of 1951 discussed the possibility of undertaking such a project with the Board of Trustees and reported to the House at its June, 1951, session that the Board had approved the appointment of an Advisory Committee on Internships to the Council and had appropriated funds for a thorough study by this Committee. In commenting on the establishment of this committee, the reference committee at the June, 1951, session stated:

Your committee commends this action of the Board of Trustees and appreciates its implementing appropriation for this much needed evaluation of a multi faceted and important phase of medical education. Your committee further recommends all possible speed compatible with ability to reach sound conclusions and make definite recommendations.

The organization of this committee was completed by September, 1951, with representatives from the major clinical fields, general practice, medical education, and hospital administration. From the outset, the committee pursued its task with unusual vigor and approached the problem confronting it seriously and thoroughly. Appreciating the necessity for objective data on which to base its conclusions and recommendations, it undertook a questionnaire survey of the graduates of the classes of 1937 and 1947. Detailed information was requested from these physicians relative to the internship which they had taken their opinion of its educational value, the important defects of the training which they had received, and many other aspects of the subject. The members of the committee individually sought the advice of many of their professional colleagues and acquaintances on the problems involved. After more than a year of exhaustive investigation and study, the committee was ready to report its findings in November, 1952, in the form of two documents, which were referred to members of the House of Delegates and approved by them at the Denver session. These documents were the revised Essentials of an Approved Internship and the Report of the Advisory Committee on Internships. The Council believes that this committee carried out its responsibilities in a most commendable manner and that its conclusions as reflected in these two statements constitute a milestone in the progress of medical education. That the reference committee which considered them last December concurred in this opinion is reflected in its recommendation to the House, which stated in part as follows:

Your committee has reviewed the 74 page report of the Advisory Committee on Internships with a great deal of interest and wishes to express its feeling of appreciation for the clarity of thought recorded in the counseling that is given to help improve the internship in various sections of the country. Because of this clear presentation your committee is sure that the internship will be improved greatly and that the quality of medical care of patients throughout the country will be markedly improved. Your reference committee heartily endorses the report and suggests that it be made available to every physician and hospital throughout the country.

As suggested by the reference committee, the Essentials and the Report were published in *THE JOURNAL*. Reprints together with a covering letter explaining the application of the revised standards were sent to all hospitals approved for internships. Subsequent to this initial distribution, requests were received and filled for upwards of 5,000 copies of each document. The general response to the findings and conclusions of the Advisory Committee from the profession at large and from those engaged in medical education has been highly laudatory. A number of critical comments have been received in recent weeks, however, based, we believe, on a misunderstanding or misinterpretation of the purposes and applicability of the new requirements, as a result of which the Council has thought it desirable to submit this supplementary report.

The criticisms which have been voiced can be summarized as follows:

1 That the Advisory Committee and the Council are trying to make the internship a fifth year of medical education. This is, in fact, true and represents no change in the expressed

policy of the Council and the House of Delegates. As early as 1925 a statement to that effect appeared in the requirements for internship approval. The following statement is quoted from the Essentials as revised that year:

The hospital through designated members of its staff should provide adequate instruction and experience for the interns who in effect are fifth year medical students in medicine, pediatrics, surgery, obstetrics and laboratory work throughout their terms of service.

In all subsequent revisions of the Essentials, the Council has consistently held to the concept that the internship must be considered primarily as a phase of medical education and has been supported in this view by the House of Delegates. To question the validity of this premise is, in effect, to state that interns are appointed to furnish the medical staff of hospitals with low paid help. The implications of regimentation and exploitation inherent in such a policy are obvious.

The Council has appreciated, however, that there is and properly should be, a service aspect to the internship. In this connection, the following statement from the Advisory Committee's report may be considered as reflecting the Council's position:

We do not mean that the hospital which offers outstanding educational opportunity to the intern should receive no service from the intern in return. We do mean that when education is the primary emphasis, excellent service as a rule goes along with it for the essence of medicine at its best includes service in every aspect. However, whereas education in medicine implies service, service in medicine does not necessarily imply education and in practice where a hospital is out for interns to get its work done in any conflict between service and education, service usually wins to the detriment of the educational opportunity.

2 The second criticism that has been advanced contends that the revised Essentials are discriminatory against smaller hospitals. The Council does not believe that this criticism is justified. The qualitative requirements for approval are applicable in equal force for all hospitals approved for internships. To state that the smaller hospital is unable to meet these requirements is to admit that it is not able to conduct an intern program of satisfactory quality. In point of fact, many smaller hospitals can and do offer outstanding intern programs and regularly attract full intern staffs.

It is true that the quantitative standards relative to bed capacity, annual admissions and autopsy rate have been raised. The Council believes that its minimum requirements in this respect are reasonable and necessary to insure that the intern receives a sufficiently broad and varied experience during the course of his training. It does not consider that it is any more difficult for a smaller hospital with relatively few deaths to meet the present autopsy requirement than it is for a large hospital with comparatively many deaths. In point of fact, it may be more difficult for the latter group to maintain the same percentage since the actual work load on the department will be appreciably greater.

It should be noted that the revised quantitative requirements as to bed capacity and annual admissions are applicable *only* to those hospitals newly applying for approval after January 1, 1953, and do *not* apply to hospitals that had been approved by the Council before that date. It is felt that this fact has not been sufficiently well understood, with the result that the criticism has been raised that smaller hospitals have been discriminated against.

3 The third criticism which has been raised is that the two-thirds provision relative to the intern complement in an approved hospital is discriminatory, again to the disadvantage of the smaller hospital. In actuality, it may prove more difficult for the larger hospitals to meet this requirement than for the smaller hospitals which seek to appoint relatively few interns. In adopting this provision, the Council was, however, primarily concerned with the interests of the intern. The excessive demands on an intern's time and energy in a hospital whose intern staff is markedly below its normal complement are almost certain to prevent the intern's receiving a well rounded training.

The House on several occasions has requested the Council to resolve the problems resulting from the disparity between

¹ Committee on Intern Placement (William Bates, Chairman) 1948 and Committee on Training of Interns (Joseph F. Londrigan, Chairman) 1950.

the number of internships offered in approved hospitals and the number of applicants available to fill them. The House may recall that three years ago an attempt was made to have the hospitals throughout the country reduce the number of internship positions through voluntary acceptance of an intern quota. The results of this proposal were entirely unsuccessful, owing, we believe, in large measure to the fact that resident staffs were being depleted as a result of the Korean war with a consequent increased demand for interns. Serious consideration was given to a suggestion that the Council set a specific limit for each hospital as to the number of internships it would be permitted to offer. It was felt, however, that the practical problems involved in arriving at a determination of such a number as well as the difficulty of defending a figure which of necessity would be somewhat arbitrary, made the proposal unworkable, e. g., limiting the number of internships to 10 if the hospital were to request 12. Further, there are legal implications to such a policy which make its adoption inadvisable. The Advisory Committee and, subsequently, the Council have given serious consideration to the necessity of adopting the two-thirds requirement. It was the consensus of both groups that some measure had to be taken to prevent further inflation of the demand for interns and to bring the number of internships into closer balance with the number of applicants. The present requirement places the matter on a self-regulatory basis rather than on an arbitrarily imposed quota. It is our firm belief that adherence to this policy will result in a more realistic appraisal by individual hospitals of their needs for interns and that there will be a lowering of the number of internships offered by hospitals throughout the country with a consequent amelioration of many of the problems resulting from the present imbalance. Again, we would like to quote from the report of the Advisory Committee as it bears on this point:

There is one requirement which is new in kind. Any internship program which in two successive years does not obtain two-thirds of its stated intern complement is disapproved for internship training. This is based on the clear-cut fact that no matter how good the internship looks on paper, how rich its patient material and extensive its laboratories or how well known its attending staff, an intern cannot get what he needs if a short-handed house staff results in such a load of routine work that he has no time for the educational aspects of his experience.

We do not anticipate that many hospitals will be disqualified on this account. Rather we expect that hospitals which are failing to meet their internship quota by a large margin will engage in a careful self-scrutiny as to whether their internship program as planned is working out in practice. We also anticipate that hospitals may avoid disqualification by voluntarily reducing their intern quota and at the same time reducing the number of beds for which interns are expected to take responsibility. Beds removed from the intern scope will not count toward the minimum number of beds required for approval. The removal of such beds (e. g. in wards devoted to research or to a single-type of chronic disease in a private pavilion where an attending or courtesy staff are not interested in teaching) from the sphere of intern work may have the double effect of making a hospital's internship more attractive and reducing the national discrepancy between available internships and available interns.

4 The fourth criticism advanced is that the establishment and enforcement of the Essentials constitutes regimentation of the profession. This is a criticism which the Council would consider as serious if it were not unfounded. The Council is charged by the House of Delegates with the responsibility for establishing adequate standards for all phases of medical education and has done so for the past forty years. The present revision of the Essentials does not differ in principle from the first Essentials adopted by the House in 1919. The purpose of these Essentials is to serve as a guide to medical staffs in hospitals throughout the country in organizing and conducting an approved intern program. A continuing effort has been made by the Council in the past as at present to improve the quality of this phase of medical education just as it has striven to improve medical education at the undergraduate level. To state that the adoption of and adherence to such standards constitutes regimentation is to imply that the efforts of the American Medical Association during the past forty years to raise the level of medical education in this country to its present point of unsurpassed excellence, have been misguided.

It is somewhat unusual for the Council to submit to the House a report of this nature. The Council has felt it important to do so, however, because of the widespread circulation which has been given to the criticisms enumerated in this state-

ment. We have gone into some detail in replying to these criticisms in order to clarify the Council's position and to present for the information of the House additional background material relative to the preparation of the present Essentials of an Approved Internship and an explanation of their application.

ESSENTIALS FOR THE TRAINING OF MEDICAL RECORD TECHNICIANS

PREAMBLE

The Council on Medical Education and Hospitals of the American Medical Association, in cooperation with the American Association of Medical Record Librarians, has established standards for the training of medical record librarians. As sufficient personnel is not available in this field, additional standards have been prepared for the training of medical record technicians who working under the supervision of a qualified medical record librarian or a medical record committee, perform the technical tasks associated with the maintenance and custody of medical records. The Council establishes standards, inspects, and approves training programs, and publishes lists of acceptable courses. The American Association of Medical Record Librarians is concerned with the promotion of educational activities and the registration of qualified record personnel.

The following standards have been established for the information of hospitals, prospective students, physicians, and educational directors and for the protection of the public.

I ADMINISTRATION

1 Acceptable courses for the training of medical record technicians may be conducted by general hospitals having adequate teaching material and personnel. Hospitals may, if they so desire, establish affiliations with accredited educational institutions.

2 Resources for the continued operation of acceptable training programs should be available through regular budgets, gifts or endowments but may be obtained in part through students' fees. Exorbitant fees or commercial advertising are considered unacceptable.

3 Training programs conducted primarily for the purpose of substituting students for paid record personnel will not be considered for approval.

II ORGANIZATION

4 Adequate space, light, and equipment should be available for the general and educational activities of the hospital departments used in the training of medical record technicians. A library containing suitable references, texts and periodicals should be readily accessible to the students.

5 The medical record department should maintain numeric files of all patients' medical records, alphabetically or phonetically filed patients' indexes, statistical data on births, deaths and autopsies, diagnostic, operative, and physicians' indexes. A modern system of indexing should be employed with supplemental classifications and files for teaching and demonstration purposes. These should include serial and unit number systems, a phonetic file, and disease and operative indexes based on the Standard Nomenclature of Diseases and Operations.

6 A record of the curriculum, syllabus, teaching plans and a procedure book should be available. Transcripts of the students' prerequisite training should be filed in the department. To these should be added the details of attendance and grades as well as a list of the experiences obtained by individual students.

7 A minimum of two students should be in training. However, the maximum number admitted for practical instruction should be determined by the amount of available space, teaching material and properly qualified instructors.

III FACULTY

8 A competent teaching staff should be assigned to the training program. The director shall be (1) a qualified medical record librarian, registered or eligible for registration, who has at least one-half the credits necessary for an academic degree from an accredited university or college and five years' experience in charge of a medical record department in an

approved hospital, or (2) a medical record librarian having equivalent educational qualifications and experience

9 An adequate number of instructors should be available so that students may have immediate guidance and supervision in their various assignments

IV ADMISSION REQUIREMENTS

10 Candidates for admission should be proficient in typing and preferably also in shorthand. They should have completed the requirements for high school graduation or should have passed a college entrance examination for admission to an accredited college or university

11 All applicants should be required to submit a physical health report including record of vaccination. All students should be given a medical examination as soon as practicable after admission and this examination should include an x ray of the chest

V CURRICULUM

12 The course of training should include not less than nine months of theoretical instruction and practical hospital experience

13 Theoretical instruction may be presented by informal conference or formal lectures and should include

Subject	Clock Hours
Anatomy	40
Medical terminology	30
Prefixes suffixes roots abbreviations disease operative and drug terms	
Medical records	60
Securing preserving usage supervision in indexes statistics medicolegal ethics	
Total clock hours	130

14 Practical training should involve the following activities associated with medical records

1 Orientation	1 week
2. Admitting procedure	
(a) Admitting office	4 weeks
Authorization for admission interview and recording of sociological data assignment of hospital number admission forms and patients register	
(b) Medical record department	8 weeks
Preparation of index card and chart folder correlation with previous records daily census birth and death certificates	
3 Discharge procedures	20 weeks
Assembling medical records checking completeness daily analysis referral to record committee indexing—diagnostic operative physicians patients—monthly and annual reports filing release of information to outside agencies	
4 Secretarial practice	4 weeks
Including relationships to x ray laboratory surgical and outpatient departments	

VI CLINICAL MATERIAL

15 The training of medical record technicians should be conducted in acceptable general hospitals having a minimum of 4,000 annual admissions. These admissions should include an adequate distribution of patients in the various clinical services commonly found in general hospitals

VII ADMISSION TO THE APPROVED LIST

16 Application for approval of a course for medical record technicians should be made to the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago 10, Ill. Forms will be supplied for this purpose on request. Inquiries regarding the registration of qualified medical record personnel should be addressed to the American Association of Medical Record Librarians, 510 North Dearborn Street, Chicago 10, Ill.

17 Approval may be withdrawn whenever in the opinion of the Council the course is not maintained in accordance with the above standards. Whenever a training program has not been in operation for a period of two consecutive years approval may also be withdrawn

Report of Reference Committee on Medical Education and Hospitals

Dr Herbert B Wright, Chairman, presented the following report, which was adopted

Report of Council on Medical Education and Hospitals. The special report of the Council on Medical Education and Hospitals is a document explaining its point of view relative to the development and implementation of the revised Essentials of an Approved Internship that were adopted at the Denver session in 1952. Your reference committee agrees that from the point of view of the Council it is a lucid explanation of some of the criticisms. Your reference committee recommends its approval. Your reference committee suggests that when the Council on Medical Education and Hospitals has any revolutionary changes in its program to be presented to the House it send a copy of such proposal to each delegate at least 30 days in advance.

Essentials for the Training of Medical Record Technicians Prepared by the Council on Medical Education and Hospitals—The Council reports the establishment of standards for the training of medical record technicians as distinguished from medical record librarians, the standards being much more flexible and less demanding in an effort to obtain a larger number of medical record workers to perform the technical tasks concerned with the maintenance and custody of medical records. While your reference committee approves this report and its recommendation, it was felt that very few members of the House of Delegates have read it or have had time to discuss it. Your reference committee, therefore, recommends at this time temporary approval of the proposed Essentials as presented in order that schools can be started in September, but refers it for further consideration and final action at the December session of the House of Delegates.

Report and Supplementary Report of Committee on Blood

Dr Herbert P Ramsey, Co-Chairman, presented the following report of the Committee on Blood, which was referred to the Reference Committee on Miscellaneous Business

Defense and Civilian Defense Blood Procurement—During the year 1952, a total of 2,459,868 pints of blood were collected for defense and civilian defense purposes. Red Cross regional and defense centers collected 2,017,101 pints of this total, and cooperating private blood banks collected 442,767 pints. The Committee on Blood called the attention of the Advertising Council, Inc., which is acting as the publicity medium for the National Blood Program, to the substantial contribution of private blood banks to the defense effort. The Advertising Council, in recognition of this effort, has added the following statement to all its media including publications, television, and radio: "Call your Red Cross Chapter or local Blood Donor Center." From present indications, it will be necessary to increase collections of blood to 3 million pints during the fiscal year of 1953 for defense purposes alone.

Civilian Blood Procurement and Usage—One source of information regarding civilian blood procurement and usage is the American National Red Cross data which indicate that during 1952 the American Red Cross distributed 1,681,775 pints of blood to hospitals in the United States. Of this quantity, 1,453,645 pints actually were utilized for blood transfusions and 228,130 pints were returned as outdated. This is about a two and one half times increase over the amount of blood furnished by the Red Cross in 1949. The civilian totals include 90,065 pints of blood used in 73 Veterans' Administration hospitals, 55 Army hospitals, 12 Navy hospitals, 20 Air Force Base hospitals, 8 Public Health Service hospitals, 3 Indian hospitals, and 8 prison hospitals.

A second source of information is the questionnaire included in the schedule of the 1952 Annual Census of Hospitals by the Bureau of Medical Economic Research of the American Medical Association. The report of the Bureau of Medical Economic Research on this questionnaire deals with these problems in detail.

Blood Fractions—Greater emphasis on serum albumin production for use in the therapy of shock has resulted from the continued incidence of infectious hepatitis in patients receiving

ing plasma transfusions Preliminary experiments seem to indicate that, in the process of separating serum albumin, the virus of infectious hepatitis is either destroyed or is not carried with the fraction The Department of Defense has agreed to accept all serum albumin produced as a result of the processing of human plasma into gamma globulin and to pay roughly 60% of the cost of the total processing The American National Red Cross has undertaken to pay the remaining 40% of the cost

Because of the tremendous interest in the problem of poliomyelitis and the undoubted demand which would exceed the foreseeable supply, the Office of Defense Mobilization, through its Subcommittee on Blood, agreed to act as an allocation mechanism for the distribution of existing supplies of gamma globulin The National Foundation for Infantile Paralysis has contracted for the entire commercial output of gamma globulin whether manufactured from human placentas or from whole blood procured by pharmaceutical firms This supply will be placed in the national pool together with the supply from the Red Cross In February, the U S Navy turned over to the Red Cross a supply of 460,000 grams of war surplus gamma globulin in dried form

In formulating the policies for gamma globulin allocation and distribution, the Office of Defense Mobilization secured the advice of an Ad Hoc Committee of the National Research Council The following allocations program was adopted

Gamma globulin for the prophylaxis of measles and infectious hepatitis will be packaged in 2 cc vials Gamma globulin for the prophylaxis of poliomyelitis will carry a special label identifying it as suitable for such use In order to comply with regulations of the National Institutes of Health, such gamma globulin must be tested in animals for presence of protective antibodies against the Lansing virus It is to be packaged in 10 cc vials

Allocation for Measles and Infectious Hepatitis—The allocation made to states and territories for prophylaxis against measles and infectious hepatitis was based on the five-year (1947-1951) median incidence for measles The number of cases was multiplied by a factor of 1.5, but no state or territory would receive less than the mean annual distribution of Red Cross gamma globulin for this purpose during the same five year period The reported incidence of measles in the states and territories was to be reviewed at monthly intervals and supplementary allocations were to be made available on the basis of unusual measles morbidity In Louisiana, the incidence of measles this year has exceeded the five year median, and difficulties with the allocation program have occurred in some areas The Committee on Blood wishes to reaffirm the position taken in previous reports, and concurred in by the House of Delegates, that gamma globulin for the prophylaxis of measles and infectious hepatitis be made freely available to practicing physicians

Allocations for Poliomyelitis—Approximately 57% of the total remaining supply of gamma globulin in the pool was distributed to the state and territorial health departments based on their past and current experience with poliomyelitis about May 1, 1953 A reserve of 33% has been retained by the National Allocating Authority for mass community prophylaxis and an additional contingency reserve of 10% has been set aside for unusual emergency purposes Under the plan adopted, the state or territorial health officers will decide the mode of prophylaxis most appropriate for use within their jurisdiction

Basic Allocation—In the basic allocation for poliomyelitis prophylaxis, the amount sent was the product of 60 cc (sufficient to treat six average contacts) and the average of the number of cases of poliomyelitis reported annually in the area for the five year period 1947-1951

Additional Allocations—After the first of May, states and territories are to receive at appropriate intervals additional allocations of 60 cc for each reported case in excess of the mean cumulative annual incidence for the same seasonal period States have been requested to report their current experience in terms of paralytic and nonparalytic poliomyelitis This has been requested so that adjustment may be made in

the form of additional allocations to meet the threat of a high ratio of paralytic cases of poliomyelitis in an area

Supplementary Allocations—About the first of July and at biweekly intervals thereafter until October 1, supplementary allocations of gamma globulin will be made to states and territories at a level designed to distribute all available gamma globulin for this purpose by the first of October This allocation to the states and territories will be proportional to their reported morbidity

Mass Community Prophylaxis—Special allocations from the reserve retained by the national allocating authority for mass prophylaxis will be made available only on application by the state or territorial Health Officer The Public Health Service has accepted the responsibility for distributing gamma globulin in accordance with the above policies

The National Foundation for Infantile Paralysis is not in full sympathy with the plan outlined It feels that gamma globulin, when administered during an epidemic of poliomyelitis to persons in those age groups subject to greatest risk, provides some temporary protection against the paralytic form of the disease Further, that most contacts of cases with poliomyelitis are already infected with the virus for several days by the time the first case in a family is diagnosed They feel that by that time the disease may have advanced beyond the point where gamma globulin can prevent paralysis For these reasons, the National Foundation's Advisory Committees on Research and Education recommended that the major portion of the nation's stockpile of gamma globulin, available for use in poliomyelitis, be reserved for mass injections of children in the most severe poliomyelitis epidemics of 1953 However, this opinion has not changed the allocation program as it was outlined above

Blood Substitutes—Dextran now appears to be leading the field of the various plasma substitutes available Initial experimentation with dextran from European sources produced allergic type side reactions However, the reaction rate for a dextran developed in this country is low In general, it has been found that molecular weight and size are the critical factors since a definite renal threshold to dextran exists Preliminary reports on field trials indicate that this form of dextran is a satisfactory plasma substitute Experiments continue on polyvinylpyrrolidone (PVP) to determine its exact route of distribution and excretion

State Committee Data—In answer to a questionnaire mailed to the state societies, 28 states and the District of Columbia indicated that they had existing Blood Bank Committees, 3 states were considering organization of such committees, and 16 states and the Territory of Hawaii had no committees The data is to be analyzed more fully and will be the subject of a report and recommendations in the near future

Fact Finding Committees—During the period since the last report of the Committee on Blood to the House of Delegates, problems arose in California and Miami, Florida, in which intervention of a fact-finding committee was requested by the state or local medical society In the case of California, both the Pacific Area Red Cross and the California Medical Association Blood Bank Commission requested assistance in the settlement of territorial disputes which were interfering with the collection of blood in Northeastern California and Western Nevada A joint committee made up of members of the Committee on Blood of the American Medical Association and the American National Red Cross investigated the situation and negotiated an agreement on a statement of principles toward whose achievement the American Red Cross, Pacific Area and the California Medical Association Blood Bank Commission should strive This was signed by the Chairman of the California Medical Association Blood Bank Commission and the Manager of the American National Red Cross, Pacific Area

In this agreement, the principle of local determination by county medical societies of the type of blood banking facilities to service their areas was reemphasized and the principles outlined were made subject to local society approval In Miami, Fla., a situation had arisen wherein the Blood Bank of Dade County, Inc., and blood banks operated within

Dade County by hospitals had come into conflict over variations in their blood replacement requirements, service charges and policies. The Dade County Medical Association, Inc., the Blood Bank of Dade County, Inc., and the hospital authorities requested the intercession of a fact-finding committee. Representatives from the American Medical Association Committee on Blood, the American Hospital Association, and the American Association of Blood Banks visited the area and succeeded in securing an agreement which was signed by representatives of all the agencies involved in the blood collection program in Dade County.

Committee on Blood Offices—The Committee on Blood Offices are now in the headquarters building of the American Medical Association, 535 North Dearborn Street, Chicago 10, Ill., Dr. Paul L. Wermer, Secretary.

SUPPLEMENTARY REPORT

Survey of Blood Banks—The Bureau of Medical Economic Research, after analyzing the answers to the blood bank questionnaire included in the last annual census of hospitals, has furnished the following summary of blood procurement and usage for 1952.

1952 Blood Bank Survey

A Procurement of Whole Blood				1949 Survey (Bull. 53)			
		000 s Units (Banks)		000 s Units (Banks)			
1	Hospital banks	(1 301)	1,800 48%	1,000	(1 403)	53%	
1a	Direct transfusions		177 4%	500		17%	
2	Non hospital banks	(70)	594 14%	400	(62)	13%	
3	Red Cross regional centers	(46)	1 017 89%	500	(31)	17%	
			4 103 100%	3 000		100%	
B Disposition of Whole Blood Procured							
4	Administered in 5,430 replying registered hospitals		8,584				
5	Administered in 1 303 non replying registered hospitals—estimated		64				
6	Administered in non registered hospitals etc.—Estimated		168 (R C reported 112)				
Total administered			8 816				
7	Outdated blood—estimated		877 (R C reported 228)				
			4,193				

The Committee wishes to express its thanks to Drs. Frank G. Dickinson and Charles E. Bradley for their analysis of these data.

National Blood Program—The Committee believes that it is imperative to proceed immediately with further exploration into the future of the blood collection program. It requests that the Committee on Blood be authorized to confer not only with the American National Red Cross, as noted in the last report to the House of Delegates, but also with other interested major national professional organizations, with a view toward evaluation at the earliest possible date of a practical plan for a continuing national blood program—a plan which will command general endorsement and support, and which will incorporate the sound principles already enunciated by the House of Delegates.

Report of Reference Committee on Miscellaneous Business

Dr. Walter P. Anderton, Chairman, presented the following report, which was adopted:

Your reference committee recommends the acceptance of the report and supplementary report of the Committee on Blood, but has suggested the following changes in the supplementary report:

Under the heading "Survey of Blood Banks" after "1952" at the end of the first paragraph, insert in parentheses the words, "exclusive of defense and civil defense collections." In the tabulation under the heading, "1952 Blood Bank Survey,"

change the words after "1a" from "direct transfusions" to "immediate transfusions." Under the heading "National Blood Program," change the words "professional organizations" in the second sentence to "medical organizations."

Report of Council on Medical Service

Dr. Elmer Hess, Chairman, submitted the following report, which was referred to the Reference Committee on Insurance and Medical Service:

TITLES OF COMMITTEES TO HEAR COMPLAINTS FROM THE PUBLIC

In June, 1952, the following resolution was presented to the House of Delegates by J. F. Shuffield, Arkansas:

WHEREAS The name Grievance Committee carries a certain opprobrium and might be misleading in the eyes of the public and

WHEREAS The work to be accomplished by this committee is to foster better public relations giving the public knowledge and information that a committee exists to settle any differences that might arise between the patient and his physician and

WHEREAS The name Professional Relations Committee is readily recognized as being a committee to settle such difficulties therefore be it

Resolved That the name Grievance Committee be changed to Professional Relations Committee

The House of Delegates voted to lay the resolution over until the December, 1952, session. In December the Reference Committee on Miscellaneous Business presented the following report, which was adopted:

Your committee disapproves the Resolution on Change in Name of Grievance Committee because this House cannot dictate what names state and county medical societies shall give to their committees and further it believes that grievance is the word most readily understood by the laity. It recommends that the Council on Medical Service continue to study the matter of names and bring in a report to this House at the June meeting.

To follow through on this resolution the Council on Medical Service in its biannual Survey of County Medical Society Activities, mailed February, 1953, included a question concerning committees to handle public complaints. As of May 25, 826 replies (compared to a total of 757 replies received in 1951) have been received. Of this number, 416 societies indicate they have committees for hearing complaints from the

TABLE 1—Nomenclature of Committees to Hear Public Complaints

Name	No of Societies Using Title*
Grievance Committee	244
Board of Censors	40
Public Relations Committee	33
Mediation Committee	22
Judicial or Judiciary Committee	12
Executive Committee (of Society)	8
Professional Relations Committee	7
Public Service Committee	5
Board of Directors (of Society)	4
Ethics Committee	4
Board of Appeals	3
Professional Conduct Committee	3
Adjudication Committee	2
Committee Minora (of Society)	2
Ethics and Mediation Committee	2

* The following titles are found but once: Adjudication and Censors Committee; Board of Appeals on Physician Patient Relations; Board of Governors; Committee on Hospital and Professional Relations; Committee on Patient Grievances; Coordinating Committee; Fee Complaint Committee; Grievance and Mediation Committee; Hearing Complaints Committee; Hospital and Medical Practice Committee; Medical Economics Committee; Medical Ethics and Department Committee; Medical Relations Committee; Board of Supervisors; Censor Committee; Committee on Ethics and Department; Mispractice Committee; Patient Relations Committee; Physician Hospital Relations Committee; Physician Patients Relations Committee; Professional Ethics Committee; Protest Committee; Publicity and Public Relations Committee; Public Policy and Relations Committee; Public Relations and Grievance Committee.

public, 408 societies have no such committees, and 2 societies report such committees are under consideration. Among the 416 societies with committees, the title "grievance committee" is used by 244 societies. Other titles are used by 172 societies, with "Board of Censors" used by 40 societies, "Public Relations Committee" by 33 societies, and "Mediation Committee" by 22 societies. The only other title used by more than 10

medical societies is "Judicial" or "Judiciary Committee," which is found listed 12 times. The survey has revealed that 35 other names are used as titles for these committees, three of which are used by from 5 to 9 societies and 7 by from 2 to 4 societies. The remaining 25 titles are found only once.

The list of titles used and frequency with which they occur are shown in the accompanying table 1.

While the title 'grievance committee' is used by many more societies than any other single title, it occurs more frequently among the smaller societies. This is shown in table 2.

TABLE 2—Titles by Size of Society

	Grievance Committee	Other Titles*
Societies with less than 100 members	182	90
Societies with more than 100 members	62	77

* Other Titles here indicate a variety of names (see table 1) and seem to show that while the larger societies may not prefer to use grievance committee they are far from agreed on an acceptable substitute. In fact the only 'other' titles used by more than four of the larger county societies (over 100 members) are Board of Censors by 14 societies, Judicial Committee by 10 societies, Mediation Committee by 9 societies and Public Relations Committee by 7 societies.

Since 62 of the larger societies use the name "Grievance Committee," it is evident that even among this group the "grievance" title continues most popular.

A review of the titles used by the state medical associations shows a similar wide divergence of choices as to names for these committees. Again the title used most is 'grievance committee' (by 23 associations), with 13 other titles divided among 17 states, with 'Board of Supervisors' used in 3 of these states and 'Mediation Committee' in 2 of them. The councils of the state associations handle this function in 6 states. Referring back to the resolution, it is evident that few medical societies prefer the title of 'Professional Relations Committee' for such committees.

The Council on Medical Service is in full agreement with the suggestion of the reference committee that the "House cannot dictate what names state and county medical societies shall give to their committees." The Council would like to call to the attention of the House of Delegates that there is a distinction between the functions of grievance committees and committees on medical ethics, which should not be confused. The Council has used the title 'Grievance Committee' on its reports on this subject and will continue to do so unless otherwise instructed by the House of Delegates.

Report of Reference Committee on Insurance and Medical Service

Dr Gerald V. Caughlan, Chairman, presented the following report, which was adopted:

Report of the Council on Medical Service Regarding the Designation of Titles of Committees to Hear Complaints from the Public. Many societies use the term 'grievance committees' while others use different designations. The Council on Medical Service believes that the House of Delegates cannot dictate what names state and county medical societies shall give to their committees and calls attention of the House to the fact that there is a distinction between the functions of grievance committees and committees on medical ethics, which should not be confused. Your committee is favorable to the report of the Council on Medical Service as to titles.

Report of Committee on General Practice Prior to Specialization

Dr A. C. Scott Jr., Chairman, presented the following report, which was referred to the Reference Committee on Medical Education and Hospitals:

The Committee on General Practice Prior to Specialization, which was appointed on May 1, 1953, met in New York on May 31 for an organizational meeting, with four members present. The President of the Association, Dr. Bauer, was in-

cluded because of his great interest in the subject, and he participated in the committee's deliberations.

General plans were agreed on for methods of study of the problem, for future meetings, for objectives to be attained, and for conferences with the Council on Medical Education and Hospitals and the various specialty boards.

It was agreed by all members present that the principal objectives sought, and which the Committee would endeavor to attain if permitted by the House to pursue its plans for another two years, are (1) a broadened base of education in the art of medical practice for all doctors entering specialization, and (2) a better distribution of doctors between urban and rural areas.

The Committee requests that the House of Delegates make this a continuing committee to study these problems further and to make periodic reports to the House from time to time. Respectfully submitted,

A. C. SCOTT JR., Chairman
ELI S. JONES
DAVID B. ALLMAN
F. J. L. BLASINGAME

Report of Reference Committee on Medical Education and Hospitals

Dr Herbert B. Wright, Chairman, presented the following report, which was adopted:

Report of the Committee on General Practice Prior to Specialization Concerning Organizational Meeting and Program.—Your reference committee recommends that the House of Delegates make this a continuing committee for another two years of study and to make periodic reports to the House from time to time. Your reference committee recommends that the report of this committee be approved.

Resolutions on Nominations to Standing Committees (Councils) of the House of Delegates

Dr Ralph A. Johnson, for the Michigan delegation, introduced the following resolutions, which were referred to the Reference Committee on Amendments to the Constitution and Bylaws:

WHEREAS Certain Standing Committees now designated as Councils were created by and made responsible to the House of Delegates of the American Medical Association and

WHEREAS No means are now provided for making nomination to these committees by members of this House therefore be it

Resolved That in addition to the manner of nominating as now provided nominations to these committees except to the Judicial Council be permitted by any member of the House of Delegates and be it further

Resolved That appropriate changes in the Bylaws be hereby adopted to carry out the purpose of these resolutions in accordance with the proposed amendments hereto attached

Chapter XI Section 2 Paragraph (B) Omit the phrase 'on nomination by the Board of Trustees' and insert the sentence 'Nominations shall be made by the Board of Trustees and may be made from the floor of the House of Delegates.' Chapter XI Section 2 Paragraph (B) will then read as follows: The Council on Scientific Assembly shall consist of seven Active or Service Members one of whom shall be a general practitioner. All members shall be elected by the House of Delegates for terms of five years so arranged that at two annual sessions the terms of two members expire and at three annual sessions the term of one member expires. Nominations shall be made by the Board of Trustees and may be made from the floor of the House of Delegates. The members of the Council on Scientific Assembly shall be chosen as far as practicable from the past section officers representing different sections. The President Elect shall be an ex-officio member of the Council on Scientific Assembly without vote.

Chapter XI Section 2 Paragraph (C) Omit the phrase 'on nomination by the Board of Trustees' and insert the sentence 'Nominations shall be made from the floor of the House of Delegates.' Chapter XI Section 2 Paragraph (C) will then read as follows: The Council on Medical Education and Hospitals shall consist of ten Active or Service Members one of whom shall be a private practitioner of medicine who is not a faculty member of a medical school or a member of a staff of a hospital associated with a medical school or university. Members of the Council shall be elected by the House of Delegates for terms of five years, so arranged that at each annual session the terms of two members shall expire. Nominations shall be made by the Board of Trustees and may be made from the floor of the House of Delegates.

Chapter XI Section 2 Paragraph (D) Omit the phrase 'and the House of Delegates shall elect from' and insert the sentence 'Nominations may also be made from the floor. The House of Delegates shall elect from

these nominations Chapter XI Section 2 Paragraph (D) will then read as follows 'The Council on Medical Service shall include six Active or Service Members each of whom shall serve for a term of five years so arranged that at one annual session the terms of two members expire and at four annual sessions the term of one member expires In addition the President the Immediate Past President and a member of the Board of Trustees selected by the Board shall be members of the Council except that the President and the trustee member shall be ex-officio members without vote At each annual session the Board of Trustees shall present to the House of Delegates three nominations for each vacancy Nominations may also be made from the floor The House of Delegates shall elect from these nominations

Chapter XI Section 2 Paragraph (E) Omit the phrase on nomination by the Board of Trustees and insert the sentence Nominations shall be made by the Board of Trustees and may be made from the floor of the House of Delegates Chapter XI Section 2 Paragraph (E) will then read as follows 'The Council on Constitution and By Laws shall consist of five Active or Service Members elected by the House of Delegates for terms of five years so arranged that at each annual session the term of one member expires Nomination shall be made by the Board of Trustees and may be made from the floor of the House of Delegates The President Secretary Assistant Secretary a member of the Board of Trustees selected by the Board and the Speaker and Vice Speaker of the House of Delegates shall be ex-officio members of the Council without the right to vote

Report of Reference Committee on Amendments to the Constitution and Bylaws

Dr John W Green, Chairman, submitted the following report, which was adopted

Resolutions on Nominations to Standing Committees (Councils) of the House of Delegates All the recommendations in these resolutions concerning nominations to the Councils of the House of Delegates have been covered in the reference committee report on the report of the Council on Constitution and Bylaws whereby provision has been made for nominations from the floor of the House of Delegates for members of the various Councils, except those for the Judicial Council Therefore, your committee recommends no action on the Michigan resolution

Proposed Amendment to Bylaws, Chapter IV, Concerning Power of Judicial Council

Dr Joseph D McCarthy, Nebraska, presented the following proposed amendment to the Bylaws, which was referred to the Reference Committee on Amendments to the Constitution and Bylaws

Amend Paragraph 1 of Chapter IV Disciplinary Action to be known as Section 1 and add Section 2 which will read as follows

Section 2 The Judicial Council after due notice and hearing may censure suspend or expel any Associate Service or Affiliate Member of the American Medical Association for an infraction of the Constitution or these Bylaws or for a violation of the Principles of Medical Ethics

Report of Reference Committee on Amendments to the Constitution and Bylaws

Dr John W Green, Chairman, submitted the following report, which was adopted

Proposed Amendment to Chapter IV of the Bylaws Your committee approves this proposed amendment, because at present there is no provision in the Constitution and Bylaws for the Judicial Council to have original jurisdiction over members of the American Medical Association who are not members of their component county and constituent state medical societies Your committee recommends the adoption of this amendment, with the following changes (1) Eliminate the word associate and add the word 'honorary' after the word affiliate, so that Chapter IV—Disciplinary Action, Section 1, remains as at present, and so that new Section 2, shall read as follows 'The Judicial Council, after due notice and hearing, may censure, suspend or expel any Service, Affiliate or Honorary Member of the Association for an infraction of the Constitution or these Bylaws, or for a violation of the Principles of Medical Ethics' Your committee recommends its adoption as amended

Your committee also recommends that this be referred to the Council on Constitution and Bylaws for implementation

Resolutions on Department of Health, Education and Welfare, and Social Security System and Program

The five following resolutions, similar in content, were referred to the Reference Committee on Miscellaneous Business The reference committee did not report on these resolutions (The report of the Reference Committee on Insurance and Medical Service on the report of the Board of Trustees having to do with the Resolution on Responsibility of the Government in the Medical Care of the Citizen, which will be found on page 733 of THE JOURNAL for June 20, 1953, pertains to the subject matter of these five resolutions)

1 Resolutions on Department of Health, Education, and Welfare

Dr J Lafe Ludwig, California, presented the following resolutions

WHEREAS Every American physician has a double interest in the newly created Department of Health Education and Welfare because it affects him professionally and as a citizen therefore be it

Resolved That this House of Delegates urge the Congress of the United States to speed and accelerate in every manner possible a thoroughgoing investigation of the entire social security program to the end that it may be placed on a sound actuarial basis and be it further

Resolved That a copy of this resolution be sent to the President of the United States to the members of the Cabinet and to each member of the Congress

2 Resolution on Social Security System

Dr William Weston, South Carolina, introduced the following resolution

Resolved That the South Carolina Medical Association, in regular session assembled on May 6 1953 instruct its delegates to present a resolution to the House of Delegates of the American Medical Association urging that body to endorse and to cooperate in if possible a full study of the present Social Security System and endeavor to work out a plan whereby it can be established and operated on a sound financial and actuarial basis

3 Resolution on Social Security System

Dr Willard A Wright, North Dakota, presented a resolution, as follows

WHEREAS It is the announced intention of the Department of Health Education and Welfare to support legislation which will have the effect of forcing self-employed persons into the Social Security System and

WHEREAS, The vast majority of members of the American Medical Association do not desire to be taxed for this purpose and

WHEREAS We have in the past registered our disapproval of this proposal now therefore be it

Resolved That the House of Delegates of the American Medical Association reaffirm its faith in the responsibility of the individual to make proper provision for himself and record its opposition to compulsory participation in the Social Security System by physicians

4 Resolutions on Social Security Program

Dr Harlan English, Illinois, introduced the following resolutions

WHEREAS There is a growing sentiment throughout the nation that the present Social Security program is basically wrong and should be repealed or revised and

WHEREAS Some of its principal faults are (A) It destroys ambition of the individual and encourages governmental paternalism (B) It withholds benefits from those reaching the eligible age of 65 unless the beneficiary limits his earned income to not more than \$75.00 per month (C) As more and more old people become eligible for Social Security benefits the government will be forced to tax again to meet its Social Security obligations because the taxes collected to finance the benefits have been spent for other purposes and the so-called Social Security Trust Fund holds mostly government IOUs (D) According to reliable economists present Social Security is actuarially unsound is not insurance but is a scheme for exacting additional taxes (E) The impractical costly work records system requires the services of an estimated 10 000 government employees at an enormous expense to the taxpayers and (F) It tends by usurping the functions of private insurance companies and destroying the incentive for personal private savings to dry up rapidly the principal sources of private risk capital and

WHEREAS The Social Security is the chief activity of the Department of Health Education and Welfare and far overshadows the importance of the Department's other services of health and education and

WHEREAS According to the investigations by the Harness Subcommittee in 1947 there is evidence of FSA employees breaking the federal law against lobbying by federal employees and

WHEREAS Proposals are now pending in the Congress to extend Social Security to additional citizens before the many faults in the present law have been corrected or wiped out and

WHEREAS Representative Reed Chairman of the House Ways and Means Committee has appointed a Subcommittee on Social Security headed by Representative Carl T. Curtis to make a critical study and thorough investigation of Social Security and

WHEREAS This study offers the potentiality of achieving needed changes in the Social Security Act therefore be it

Resolved That the delegates of the Illinois State Medical Society in regular session assembled make the following recommendation to the President and the Congress of the United States That Social Security be held at status quo and not extended to any other groups at least until after Representative Curtis Subcommittee and any other Congressional Committees have completed their studies and adequate time has been allowed for the consideration and proper evaluation of Committee reports by the people and be it further

Resolved That the delegates make the following recommendations to Representatives Reed and Curtis the members of the Subcommittee on Social Security and to the President and the Congress of the United States

1 That serious consideration be given to having the federal government abandon Social Security by (A) having the individual states finance and administer state pensions if their citizens so desire (B) paying off present beneficiaries with federal funds or (C) transferring the risk to legitimate insurance companies.

2. In lieu of the much preferred abandonment of Social Security (recommendation number one) place Social Security on a pay-as-you-go basic amount pension for everyone at age 65 which would eliminate payroll record keeping would reduce the number of Social Security employees by 10 000 and would encourage beneficiaries to continue working and contribute to productivity rather than being forced to depend on government paternalism as is now the case

3 Return all old age and assistance welfare programs to the states where they can be administered more humanely efficiently and economically

4 Reduce federal taxes in the amount necessary for the states to finance the assistance programs so that the individual states will have untouched sources for taxation

5 Remove compulsion from the pay as you go basic amount pension and place the pension system on an entirely voluntary basis in keeping with the principles of the American free market economy and be it further

Resolved That a copy of this resolution be spread on the minutes of this meeting and that copies of it be sent to (1) the President of the United States (2) all members of Congress and (3) the House of Delegates of the American Medical Association

5 Resolution on Social Security Program

Dr Robert B. Homan Jr., Texas, introduced a resolution, as follows

WHEREAS There is a growing sentiment throughout the nation that the present Social Security program is basically wrong and should be repealed or revised and

WHEREAS The physicians of the United States are well aware of the many faults of the present system and

WHEREAS Proposals are now pending in the Congress to extend Social Security to many groups of self-employed including physicians not now required to pay their own Social Security tax and

WHEREAS Legislation now proposed would give Federal Medical and Hospital care to the beneficiaries of the Old Age and Survivors Insurance and

WHEREAS, The Carl T. Curtis subcommittee of the House Ways and Means Committee is now making a critical investigation of Social Security which offers the potentiality of achieving needed changes in the Social Security Act, therefore be it

Resolved That the House of Delegates of the American Medical Association assembled in regular session in New York City June 1 1953 recommend to the President and the Congress of the United States that there be no extension of Social Security to groups not now covered that there be no federal medical or hospital care established under the Old Age and Survivors Insurance program, and that serious consideration be given to returning to the states the responsibility for financing and administering such pension programs as their citizens desire

Resolutions on Intern Training

The following five resolutions dealing with essentially the same subject were introduced by (1) Dr J. Lafe Ludwig, California, (2) Dr James Q. Graves, Louisiana, (3) Dr Paul Baldwin, Missouri, (4) Dr Carlton E. Wertz, New York, and (5) Dr James Z. Appel, Pennsylvania, and were referred to the Reference Committee on Medical Education and Hospitals

1 Resolution on Intern Training in Private Hospitals

WHEREAS There has developed in the United States a marked shortage of interns available for private hospitals due in part at least to the increasing demands of public military and veterans hospitals and

WHEREAS If the private practice of medicine in the United States to which the American Medical Association is dedicated is to survive our newly graduating doctors must not only receive adequate scientific clinical instruction and experience but must also learn something of the art and economics of private practice with its highly important personal doctor patient relationship with its obvious advantages to society and

WHEREAS These factors essential to the preservation of our heritage and to the welfare of the public can be far more adequately learned by the intern in our many excellent private hospitals which can furnish adequate scientific instruction and experience as well and

WHEREAS The report of the Advisory Committee on Internships of the Council on Medical Education and Hospitals of the American Medical Association which report has been accepted and published in THE JOURNAL as the basis for approval of hospitals for intern training obviously sets up requirements that can be met only by the larger hospitals affiliated with medical schools and is definitely prejudicial to the interests of the hundreds of private hospitals which will find it impossible under these rulings to qualify for intern training now therefore be it

Resolved That a further study be made of this problem with a more realistic attitude toward private medical practice and hospital care in order that continued opportunity may be given to private hospitals to provide the excellent intern training that they have furnished in the past

2 Resolutions on Essentials of an Approved Internship

WHEREAS The report of the Advisory Committee on Internships to the Council on Medical Education and Hospitals of the American Medical Association dated Nov 15 1952 and the Essentials of an Approved Internship prepared by the Council on Medical Education and Hospitals of the American Medical Association dated Nov 15, 1952 and revised Dec 4 1952 stipulates that approved internships can be conducted only in hospitals in which the educational benefits are considered of paramount importance and the service benefits to the hospitals are secondary and

WHEREAS The Council on Medical Education and Hospitals in its concept is trying to make the internship a fifth year of medical education instead of a year or more of medical practice under supervision and

WHEREAS Only hospitals having a capacity of at least 150 beds, exclusive of bassinets and a minimum of 5 000 annual admissions would be accepted for approval and

WHEREAS The establishment and enforcement of these regulations constitutes regimentation of the medical profession and is an encroachment on the individual rights and privileges of practicing physicians therefore be it

Resolved That the Louisiana State Medical Society instruct its delegates to the American Medical Association to express, on the floor of the House of Delegates at the June 1953 meeting of the American Medical Association this Society's objection to these Essentials and recommend that the previous action of the House of Delegates of the American Medical Association with regard to the Essentials of an Approved Internship be revoked and be it further

Resolved That copies of these resolutions be sent to each member of the House of Delegates of the American Medical Association the President and Secretary of the American Medical Association the chairman and members of the Advisory Committee on Internships to the Council on Medical Education and Hospitals of the American Medical Association the chairman and members of the Council on Medical Education and Hospitals and to the president of each state medical society throughout the country

3 Resolution on More Equitable Distribution of Interns

WHEREAS There are each year approximately eight accredited internships in the United States to every five Class A Medical School graduates and

WHEREAS Many large hospitals have increased their number of internships out of proportion to bed capacity increases and clinic needs and

WHEREAS These hospitals regularly get their full quota of interns, and WHEREAS Many other hospitals accredited for internship are unable to secure sufficient interns and often secure none and

WHEREAS The only foreseeable solution to this problem is a more equitable distribution of interns among accredited internships therefore be it

Resolved That the Council on Medical Education and Hospitals of the American Medical Association be instructed to take immediate steps to insure a more equitable distribution of interns

4 Resolution on Revision of Intern Program

WHEREAS There is an admitted shortage of graduate physicians to fill all the approved internships, and

WHEREAS There are many hospitals with excellent training and educational facilities which are not affiliated with medical schools, and

WHEREAS The recent new Essentials of an Approved Internship will make it difficult for many hospitals to obtain interns and

WHEREAS The new two-thirds of a hospital quota requirement will make it even more difficult for many hospitals to obtain interns and

WHEREAS The new 'Essentials' were approved by the American Medical Association House of Delegates at the Denver meeting without having time for a complete study or understanding of all its implications, therefore be it

Resolved That the House of Delegates of the American Medical Association approve the following

1 Postponement for at least three or four years of the time set for the Essentials of an Approved Internship to be put into force and effect

2 Establishment of a new special committee of the American Medical Association to conduct a prompt reevaluation of the intern problem which study would take into consideration the best interests of the patient the hospital and the medical profession such special committee to be composed of physicians half of whom at least shall not be connected with medical schools or their affiliated hospitals and who shall be in the active private practice of medicine

3 Rescinding of the requirement that hospitals meet two-thirds of the number of their normal complement of interns for two years in succession or lose their accreditation

5 Resolutions on Revision of Essentials of Approved Internships

WHEREAS The House of Delegates of the American Medical Association has accepted the report of the Advisory Committee on Internships made to the Council on Medical Education and Hospitals and

WHEREAS This report has been incorporated in the report entitled Revision of the Essentials of an Approved Internship published by the Council on Medical Education and Hospitals in THE JOURNAL of the American Medical Association Feb 14 1953 and

WHEREAS This Revision sets forth drastic changes in the requirements for approval of hospitals for intern training as follows (1) Increases required bed capacity to 150 including bassinets (2) Increases required annual admissions to 5000 excluding newborn (3) Increases required autopsy rate to 25 per cent, and (4) Compels approved hospitals to secure at least ¾ of its annual quota of interns Failure to secure ¾ of the quota for two successive years may result in the loss of the hospital's approved status and

WHEREAS The hospitals in Luzerne and Blair Counties have for many years met in full the requirements of the Pennsylvania State Board of Medical Education and Licensure and

WHEREAS The requirements set forth above will drastically affect all the hospitals in Luzerne and Blair Counties and will automatically prevent several of the hospitals from securing approval therefore be it

Resolved That the Luzerne and Blair County Medical Societies components of the Medical Society of the State of Pennsylvania hereby unanimously express their disapproval of the action of the Council on Medical Education and Hospitals of the American Medical Association and be it further

Resolved That during this period of nationwide shortage of interns the proper solution to this problem would be the arbitrary reduction of the quota allowed every approved hospital in the country in accordance with the number of interns available

Report of Reference Committee on Medical Education and Hospitals

Dr Herbert B Wright, Chairman, presented the following report, which, after discussion, was adopted

With regard to the Essentials of an Approved Internship, there were five resolutions submitted by, respectively, Dr J Lafa Ludwig of the California Medical Association, Dr James Q Graves of the Louisiana State Medical Society, Dr Paul Baldwin of the Missouri delegation, Dr Carlton E Wertz of the New York delegation, and Dr James Z. Appel of the Pennsylvania delegation for Luzerne and Blair Counties These resolutions include the following recommendations (1) Revocation of the House of Delegates' action at the Clinical Meeting in Denver in 1952, (2) Disapproval of the action taken at Denver, (3) An arbitrary reduction of the quota allowances of every approved hospital (4) Postponement of enforcement and the effect of the Essentials for three or four years, (5) That a new study of the problem be made by a committee not connected with medical schools or their affiliated hospitals, at least half of whose members shall be engaged in private practice, (6) Rescind the requirements that hospitals need two thirds of the normal complement of interns for two years in succession, and (7) More equitable distribution of interns

Your reference committee recommends a substitute for the aforementioned resolutions as follows

WHEREAS From the hearings before your reference committee at this time it was concluded that the action taken by the House of Delegates at the session in Denver in 1952 was done without opportunity for thorough study and deliberation by the members of the House of Delegates and

WHEREAS There appears to be considerable dissatisfaction with the present Essentials of an Approved Internship as testified to by the number of members who appeared before the committee and

WHEREAS The postponement of enforcement and effectiveness of the Essentials for three or four years would serve no practical purpose therefore be it

Resolved That the House of Delegates abolish the rule whereby approval may be withdrawn from an internship program which for two consecutive years fails to obtain at least two-thirds of its slated complement of interns and be it further

Resolved That further study be continued by a committee appointed by the Speaker of the House of Delegates at least half of whom are doctors in private practice not connected with medical schools or affiliated hospitals

Resolution on Blood Banking

Dr J Lafa Ludwig California, introduced the following resolution, which was referred to the Reference Committee on Miscellaneous Business

WHEREAS The ready availability of blood and blood derivatives has become a vital necessity to modern medical practice in both the civilian and military populations and therefore a matter of highest concern to the physician and

WHEREAS The independent operation of blood banks of all degrees of excellence throughout the nation by many different agencies some lay and some medical has resulted in some confusion and friction between blood banks and organizations operating blood banks and

WHEREAS The general public is confused irritated and critical of the varying methods of operation among blood banks in the same or contiguous areas and

WHEREAS The professional aspects of the drawing of blood its fractionation and its use as a therapeutic tool must be under medical control and such medical control on a national scale logically should be a function of the American Medical Association and

WHEREAS The American Red Cross has already been designated by the government as the official blood recruitment and distributing agency for the military services and

WHEREAS The present American Red Cross program of so-called free blood without requirement for replacement has made collection of adequate supplies for civilian use difficult has been a tremendous drain on Red Cross funds which might be better devoted to purposes more consistent with Red Cross functions and is inaccurate to the extent that blood is not free but is paid for by the community at large in contributions and by the government through tax revenues now therefore be it

Resolved That this House of Delegates urge the establishment of a coordinated national blood bank program operated by the American Medical Association the American National Red Cross and other qualified organizations interested in blood banking on the following basis

1 Medical aspects of blood banking shall be under the exclusive control of the medical profession

2 Business administration donor recruitment stockpiling for civil defense and disaster relief allocation of supplies to meet military needs and public relations shall be matters of joint concern

3 The supply of blood shall be maintained on a replacement basis

4 The national blood bank program shall be a financially self-supporting but nonprofit arrangement operated in the national interest but with the sole aim of promoting the widest availability of safe usable blood and its derivatives

Report of Reference Committee on Miscellaneous Business

Dr Walter P Anderton, Chairman, submitted the following report, which was adopted

Your Reference Committee on Miscellaneous Business recommends the adoption of the Resolution on Blood Banking, introduced by Dr J Lafa Ludwig of the California Medical Association, with the following slight modifications Change the word 'operated' in the first sentence of the 'Resolved' to 'organized' and insert in the same sentence after the words 'blood banking' the words 'in so far as may be appropriate', change the last word of No 2 of the "Resolved," concern," to 'interest'

Resolution on Osteopathy

Dr J Lafa Ludwig, California, introduced the following resolution, which was referred to the Reference Committee on Miscellaneous Business

WHEREAS The practice of osteopathy has been recognized legally by all states and unlimited licensure to practice medicine and surgery is granted to graduates of schools of osteopathy in a large majority of states now therefore be it

Resolved That the House of Delegates believes that it would be in the interest of the health and medical welfare of the American people if the American Medical Association were to adopt a policy of assistance by doctors of medicine in the undergraduate and postgraduate education of doctors of osteopathy

Report of Reference Committee on Miscellaneous Business

The Majority Report of the Reference Committee on Miscellaneous Business contains in its first paragraph, on page 739 of THE JOURNAL for June 20, 1953, reference to the committee's action with respect to the foregoing Resolution on Osteopathy

Resolution on Medical Care of Veterans

Dr J Lefe Ludwig, California, introduced the following resolution, which was referred to the Reference Committee on Insurance and Medical Service

WHEREAS The highest quality of medical care and rehabilitation of service-connected disabilities in veterans is an undisputed obligation of the Federal Government and a basic requirement of long-term defense and

WHEREAS This program should be the first responsibility of the Veterans Administration's medical program and

WHEREAS In most communities local health facilities are adequate for treatment and rehabilitation of non-service-connected disabilities and

WHEREAS Economy is usually given as the excuse for the Veterans Administration not affording physicians in the home town with the veterans service medical records or records of treatment of the Veterans Administration or otherwise and the lack of such records deters the best medical care and rehabilitation of the veteran as well as working a hardship on the physician and

WHEREAS The present Veterans Administration laws state that non-service-connected illnesses will be cared for by the Veterans Administration if the individual signs an oath that he is unable to pay for private medical care and

WHEREAS Such violations could be eliminated if a more accurate definition of eligible beneficiaries were clearly stated in the law now therefore be it

Resolved That this House of Delegates set up a program which will aid the Congress to

1 Continue the policy of the American Medical Association of advocating the best medical care and rehabilitation of service-connected disabilities

2 Eliminate false economy measures in home town treatment programs and furnish the home town physician with military and Veterans Administration records

3 Eliminate waste in the treatment of non service-connected disabilities by defining a beneficiary sufficiently well so that the expansion of facilities for the care of non-service-connected disabilities is obviated

Resolution on Treatment of Nonservice Disabilities by Veterans Administration

Dr C H Richardson, Georgia, presented the following resolution, which was referred to the Reference Committee on Insurance and Medical Service

WHEREAS The House of Delegates of the Medical Association of Georgia has gone on record as being opposed to the general principle of the treatment of nonservice disabilities by the Veterans Administration, therefore be it

Resolved That the House of Delegates of the American Medical Association concur in this resolution

Resolution on Reconsideration of Report of Special Committee on Federal Medical Services

Dr J Wallace Hurff, New Jersey, introduced the following resolution, which was referred to the Reference Committee on Insurance and Medical Service

WHEREAS The House of Delegates of the American Medical Association having considered the report of the Special Committee on Federal Medical Services, failed to take positive action as recommended in that said report and

WHEREAS It is imperative that the American Medical Association establish a definitive policy for the care of veterans of our Armed Forces which will include the scope of government responsibility to the veteran and his family therefore be it

Resolved That the House of Delegates of the American Medical Association reconsider the report of the Special Committee on Federal Medical Services—Dr Walter B Martin Chairman—for the purpose of establishing a definite policy

Resolutions on Diminution of Medical Services by the United States Veterans Administration

Dr H H Bauckus, New York, presented the following resolutions, which were referred to the Reference Committee on Insurance and Medical Service

WHEREAS It becomes increasingly apparent that the federal budget should be balanced and

WHEREAS Recent reductions in the budget of the Veterans Administration have resulted in a decrease of the number of hospital beds and out patient facilities available for the care of the veterans, and

WHEREAS These decreased facilities have resulted in lessened care for veterans without regard to whether the disability is service-connected or non-service-connected and

WHEREAS This is to the detriment of veterans with service-connected disabilities who should have every available care in accordance with the intent of the law as well as the wishes and desires of the American people therefore be it

Resolved That the House of Delegates of the American Medical Association urge that the Veterans Administration be required by law to restrict any reduction in the medical care of veterans to veterans who have non service-connected disabilities except in cases of prolonged illnesses such as tuberculosis and psychiatric conditions and in proven hardship cases where local facilities are not available, and be it further

Resolved That copies of this resolution be transmitted to the members of the United States Senate Committee on Labor and Public Welfare to the members of the House of Representatives Committee on Veterans Affairs, to Hon Carl R Gray Jr Administrator of the United States Veterans Administration and to Admiral Joel T Boone Chief Medical Director of the United States Veterans Administration

Resolutions on Medical and Hospital Benefits for Veterans, Government Personnel, and Their Dependents

Dr George A Woodhouse, Ohio, introduced the following resolutions, which were referred to the Reference Committee on Insurance and Medical Service

WHEREAS There is now pending before the Congress proposals to modify the present law relating to medical and hospital benefits for veterans and

WHEREAS Congress also has under consideration measures pertaining to the furnishing of medical and hospital care for the dependents of military and other government personnel and

WHEREAS These questions are of major importance to all parties directly concerned and to the nation as a whole therefore be it

Resolved That the American Medical Association should as soon as possible establish definite policies regarding the attitude of the medical profession on these issues in order that members of the Congress may be advised of the views of the medical profession on these questions and be it further

Resolved That the American Medical Association take into consideration the following recommendations in formulating policies on these vital subjects

1 Veterans the same as all other citizens are entitled to adequate medical and hospital care of the highest quality

2 Ex service men and women whose disabilities are the direct result of military service should be provided with such care at the expense of the Federal Government through the facilities of the Veterans Administration

3 Ex-service men and women whose disabilities are of non-service-connected origin and who cannot themselves meet the cost of necessary medical and hospital care should be provided with such care at public expense but such care should be supplied through regular state and local agencies established for such purposes

4 The dependents of military personnel and civilian employees of the armed forces the same as all other citizens are entitled to adequate medical and hospital care of the highest quality

5 Such dependents and civilian employees should be cared for by medical officers of the armed forces only in cases of emergency or in military areas where proper and adequate services cannot be supplied by civilian physicians and adequate hospital services cannot be furnished by civilian hospitals

6 Such dependents and civilian employees who cannot themselves meet the costs of necessary medical and hospital care, or who do not have benefits provided by voluntary medical and hospital insurance programs should be provided with such care at public expense Care furnished to them at public expense should be supplied through regular state and local agencies established for such purposes

7 Physicians should be encouraged to discuss with the members of the armed forces and their families their economic status and should endeavor to work out with them a financial arrangement which would not impose a hardship on such families even to the extent of providing services without reimbursement should that be necessary

Resolution on Medical and Hospital Care of Veterans by the Federal Government

Dr Raymond M McKeown, Oregon, introduced the following resolution, which was referred to the Reference Committee on Insurance and Medical Service

WHEREAS The American Medical Association is in complete agreement with the great majority of the American people that veterans who have disabilities resulting from service to our country should be assured by the Federal Government of adequate disability compensation and the highest type of medical and hospital care, and

WHEREAS The American Medical Association recognizes that some veterans have impaired earning capacity because of service-connected disabilities and are unable to provide hospital and medical service for diseases or injuries not related to their military service from their own resources and

WHEREAS Existing federal veterans legislation authorizes the Veterans Administration to provide medical and hospital service to veterans for non-service-connected disabilities if beds are available and the veteran affirms that he is unable to pay for these services, and

WHEREAS This legislation contains no definition of ability to pay in terms of the veteran's income and requires no determination of his economic status and

WHEREAS Under present law and administrative practice medical and hospital services for non-service-connected disabilities are supplied to veterans without regard to their ability to provide these services from their own resources and

WHEREAS Under present and prospective world conditions it appears likely that a very large portion of all able-bodied citizens of military age will be called on for service in the armed forces and

WHEREAS This large body of citizens in discharging this duty of citizenship will become war veterans and under existing law and administrative practice will be eligible to receive medical and hospital services from the Federal Government for diseases and injuries not connected with their military service, and

WHEREAS Unless present law and administrative practice are changed this tremendous increase in the number of veteran beneficiaries will result in a vast expansion of Veterans Administration facilities and personnel and the establishment of a federal socialized medical and hospital system for a large segment of our citizenry which will ultimately destroy our present voluntary system of civilian medical and hospital care and

WHEREAS The American people and the Congress of the United States have clearly indicated their disapproval of the socialization of the nation's medical and hospital service under a federal system of compulsory health insurance and

WHEREAS The great majority of our citizens who are called on for military duty are in the young and able-bodied age group and return to civil life with their earning capacity unimpaired and in many cases increased by vocational training received from the Federal Government during or following their period of service and

WHEREAS Most of these citizens are fully capable of providing care for non-service-connected diseases and injuries from their own resources especially by participation in one of the many voluntary prepayment medical and hospital service and indemnity plans now available to our people therefore be it

Resolved That the House of Delegates authorize and direct the Board of Trustees and the Committee on Legislation to seek to obtain the amendment of existing federal veterans legislation

1 To limit the provision of medical and hospital care to (a) veterans with service-connected disabilities tuberculosis and neuropsychiatric disorders (b) veterans with non-service-connected disabilities who are unable to provide care for such disabilities from their own resources because their earning capacity is impaired by service-connected disabilities and (c) veterans with non-service-connected disabilities who for any other reason are unable to provide care for such disabilities from their own resources

2 To provide a specific definition of ability to pay in terms of the taxable income of the veteran as determined for federal income tax purposes and

3 To require the Veterans Administration to apply this definite standard of ability to pay to all applicants for medical and hospital care for non-service-connected disabilities

Resolution on Treatment of Non-Service Connected Disabilities by Veterans Administration

Dr Robert B Homan Jr, Texas, presented the following resolution, which was referred to the Reference Committee on Insurance and Medical Service

WHEREAS A great many of the patients being treated at taxpayers' expense in Veterans Administration hospitals are being treated for non-service-connected disabilities and

WHEREAS Undoubtedly many of these patients are able to pay for their medical care or if indigent can be provided such care at less cost by local communities and

WHEREAS The Special Committee on Federal Medical Services appointed by the Board of Trustees of the American Medical Association, recommended to the American Medical Association House of Delegates in Denver December 2 1952 that it go on record as opposing the care of non-service-connected disabilities in Veterans Administration hospitals and

WHEREAS The Booz, Allen and Hamilton survey recommends that Congress look into this problem of federal care via the Veterans Administration of non-service-connected disabilities and

WHEREAS The Hoover Commission and other independent agencies have called attention to the extravagant building program of the Veterans Administration the careless expenditure of funds in government hospitals and the wasteful use of medical and nursing talent in these institutions and

WHEREAS An elected representative of the American Legion speaking before the American Medical Association House of Delegates in Denver in December 1952 denounced those chiselers who are bringing the medical services of the Veterans Administration into disrepute with the taxpayers both lay and physician and

WHEREAS The House of Delegates of the American Medical Association has resolved with admirable restraint to await the outcome of a proposed conference of the appropriate committees of Congress the Veterans Administration the American Legion the American Hospital Association the American Dental Association, and the American Medical Association before adopting the recommendations of the Special Committee on Federal Medical Services therefore be it

Resolved That the proper councils and committees of the American Medical Association take the necessary steps which will correct existing evils that are permissible by the present existing laws and if necessary support new legislation to correct this evil

Report of Reference Committee on Insurance and Medical Service

The report of the Reference Committee on Insurance and Medical Service regarding the foregoing seven resolutions, which were referred to that committee, will be found on page 733 of THE JOURNAL for June 20, 1953

Resolutions on Public Criticism of Physicians

The following 11 resolutions dealing with the same subject were introduced by (1) Drs J Lefe Ludwig California, (2) Louis M Orr II, Florida, (3) Harlan English Illinois, (4) George A Earl, Minnesota, (5) J Stanley Kenney, New York, (6) James Stevenson, Oklahoma, (7) James Z Appel, Pennsylvania, (8) Robert B Homan Jr, Texas, (9) and (10) Frank J Holroyd, West Virginia, and (11) William D Stovall, Wisconsin, and were referred to the Reference Committee on Legislation and Public Relations

(1) Resolution on Public Relations

WHEREAS The American College of Surgeons through its paid spokesmen and through various of its Regents and other officers has been conducting through the pages of the public press and other media a campaign of destructive criticism of medicine in general by implying that all ghost surgery unnecessary or incompetent surgery is being performed by physicians other than those who are Fellows of the American College of Surgeons or Diplomates of the American Board of Surgery and

WHEREAS The dignity of the profession and the confidence of the public in the medical profession has suffered immeasurably because of the intemperate and unfounded accusations of these individuals now therefore be it

Resolved That this House of Delegates censure the actions of these individuals and be it further

Resolved That the American College of Surgeons and its spokesmen be reminded in the public interest that there already exist adequate methods for correction of such alleged abuses through the constituted channels of the American Medical Association and its component societies

(2) Resolutions on Paul R Hawley, F A C S

WHEREAS Over the past few years it has been the avowed desire of the American Medical Association and its component societies to promote a policy of improved public relations and

WHEREAS This policy has been through the efforts of specific committees and individual members attended with a remarkable degree of success and

WHEREAS This state of favorable public relations has been alluded to as the greatest bulwark against the advent of socialized medicine and

WHEREAS The greatest blow to this policy on public relations and a consummate and open violation of the code of medical ethics has been accomplished through the public utterances of a member of the American Medical Association in regard to splitting of fees unnecessary surgery and ghost surgery namely Dr Paul R Hawley and this undesirable effect has been fostered by the equally public affirmation of another member of the American Medical Association, namely Dr Everts Graham and

WHEREAS This unfortunate publicity has created distrust of and has lowered public confidence in physicians generally therefore be it

Resolved By the Florida Medical Association that such methods of attacking the problem of unethical practices are unsound and are opposed to the best interests of the public and the medical profession and be it further

Resolved That a copy of this resolution be spread upon the minutes of the Florida Medical Association and that a copy be sent to the Chairman of the Board of Regents of the American College of Surgeons and be it further

Resolved That this resolution be carried to the floor of the House of Delegates of the American Medical Association by the delegates of the Florida Medical Association so that it can be given proper consideration and appropriate action

(3) Resolution on Dr Paul R Hawley

WHEREAS Dr Paul R Hawley the Director of the American College of Surgeons who lists his address as 40 East Erie Street Chicago Illinois a service member of the American Medical Association recently was invited by the editors of the U S News and World Report a lay magazine of national circulation and distribution to their conference room where there took place a certain interview appearing in the February 20 1953 issue on pages 48 to 55 both inclusive a true and correct copy of which interview is quoted below and it appears that said interview consisted of many questions propounded to and answered by Dr Hawley on a variety of subjects touching the medical profession and the conduct of its members some excerpts of which are as follows

Q Is it your contention Dr Hawley that fee splitting among doctors is wrong?

A Fee splitting results in a lot of bad surgery and a terrible lot of unnecessary surgery

- Q Does this ghost surgeon work by an x ray? How does he know where to cut?
- A Of course he can have anything he may need for the operation but nine times out of ten no He just takes the word of the doctor who tells him what he thinks is wrong
- Q He is like a butcher?
- A A meat cutter. One of my friends likes to call them hewers of flesh and drawers of blood
- Q Is there any tendency toward abuse in those things? (Referring to fees in sickness funds)
- A On a wide scale no In isolated spots yes I don't know whether you have noticed it out in California or not there have been 200 doctors out there who have been chiseling on the Blue Shield Fund
- Q Isn't all this crusading against unethical practices in medicine going to undermine public confidence in physicians?
- A Yes there is that definite reaction to expect My only answer to that would be that the profession has brought it on them selves

WHEREAS It appears that the answers of Dr Hawley in said interview contain misstatements and distortions of fact, unfounded and uncorroborated charges platitudes innuendoes and generalizations with implications of a pernicious and unsavory nature individual and collective self laudation of grandiose proportions and scurrilous and derogatory remarks tending to bring the medical profession in disrepute and to make it subject to public suspicion ridicule and scorn and

WHEREAS In an unprecedented meeting of the Board of Regents of the American College of Surgeons as reported in newspapers with national and international coverage on or about September 25 1952 the Regents asked the aid of newspapers—not of medical associations and forums—in educating the public to certain evils four of the members being directly quoted on the subject and the same idea with unqualified amplifications and ramifications was echoed by Dr Hawley in his interview above referred to and

WHEREAS It further appears that Dr Hawley in said interview when asked about the selection of a doctor replied If I had any choice

I would not allow anybody to go into my belly who was not a member of the American College of Surgeons or a diplomate of the American Board of Surgeons that he volunteered the statement that 'We in the College of Surgeons investigate all possible unethical practice—unnecessary surgery ghost surgery fee splitting' that when questions If a hospital has your certificate on the wall would it be likely to do this type of surgery (referring to ghost surgery) Dr Hawley replied Oh no But we have given up our own certification! and it appears that all of said answers were self laudations which defy the traditions and lower the moral standards of the medical profession and were deliberately designed to promote and elevate the American College of Surgeons at the expense of all in the medical profession who are not members of said College and that in view of these public pronouncements and others of a similar vein there exists a serious doubt as to whether the American College of Surgeons whose representatives sit on the Board for accrediting hospitals can render an impartial and unbiased report in the performance of their duties and

WHEREAS The American Medical Association is the supreme voice and authority in all matters pertaining to and affecting the medical profession and all other constituent organizations being a part of the whole cannot be greater than the whole the American College of Surgeons through its director and regents, has attempted to arrogate unto itself vast powers which it does not possess and has held itself out as the palladium of medical virtue, it would be catastrophic were other organizations within the American Medical Association seeing this precedent of unbridled and unlicensed newspaper and magazine comments go unchallenged to issue criminalizations and recriminations in airing of medical problems through the medium of lay publications as a consequence of which there would be chaos and confusion of voices and as a resultant the further undermining of public confidence in the medical profession and it is therefore necessary that a thorough inquiry and review be made of this entire situation a policy formulated and established and remedial measures adopted therefore be it

Resolved That the delegates of the Illinois State Medical Society present this report of conditions in its entirety to the House of Delegates of the American Medical Association for inquiry review remedial measures and disciplinary action at the earliest possible date

(4) Resolutions on Public Criticism of Physicians

WHEREAS It is agreed that public criticism of one physician by another is a violation of the Principles of Medical Ethics of the American Medical Association and

WHEREAS In recent months nationwide publicity has been given to intra professional criticism and

WHEREAS Public statements have tended to extol one branch of medical practice and disparage another and

WHEREAS These statements are considered inimical and unbecoming to the dignity of the profession and

WHEREAS These statements tend to undermine and destroy public confidence in all branches of medicine therefore be it

Resolved That the delegates of the Minnesota State Medical Association condemn such statements and direct that its delegates to the American

Medical Association bring this matter before the House of Delegates of the American Medical Association convening in New York in June 1953 and be it further

Resolved That the delegates of the Minnesota State Medical Association to the American Medical Association try to curb such irresponsible actions in the future

(5) Resolutions on Ethical Relationships Between Physicians

WHEREAS Many physicians in general practice realize that ill-advised and misleading news releases or statements can do infinitely more harm to an understanding between doctors of medicine and the American public than can be corrected by years of patient thoughtful and considered effort be it

Resolved That the American Medical Association consider some means of controlling public expressions of its members which are (1) beneath the dignity doctors strive to attain for their profession and/or (2) inclined or intended to cast aspersions upon arouse suspicion against or undermine the public confidence in any particular group within the medical profession and be it further

Resolved That the American Medical Association shall resist attempts by any group or a spokesman for any group to impugn the judgment of the general practitioner or other qualified doctor of medicine in performing any service for which he is qualified and be it further

Resolved That the American Medical Association devise a method by which itemized joint or combined bills covering the professional services of several doctors in respect of a single case may be rendered to a patient or his legally authorized agent by one doctor acting for himself and those doctors who may be associated with him in treating the single case

(6) Resolutions on Statements by Dr Paul R Hawley, Executive Director, American College of Surgeons

WHEREAS Members of the Oklahoma State Medical Association realize that ill advised unfounded false misleading and vitriolic news releases or statements such as were recently made in the lay press by Paul R. Hawley M D Executive Director of the American College of Surgeons, and endorsed by the governing board of the American College of Surgeons have done infinitely more harm to an understanding between doctors of medicine and the American public than can be corrected by years of patient thoughtful and well considered effort and

WHEREAS The Oklahoma State Medical Association steadfastly and sincerely believes in the basic honor both personal and professional of the medical doctors of the United States and

WHEREAS The Oklahoma State Medical Association believes the task of solving this situation can only be accomplished by and through the American Medical Association now therefore be it

Resolved That the American Medical Association be asked to contact immediately the American College of Surgeons or any other medical organization to prevent the recurrence of such statements of official representatives of the American College of Surgeons or any other medical organization that are unethical and tend to destroy the confidence of the public at large in all physicians and be it further

Resolved That the Oklahoma State Medical Association invites the American College of Surgeons to submit to it any documentary evidence it has concerning the unethical practices of any physician who is a member of the Oklahoma State Medical Association and be it further

Resolved That the American Medical Association be asked to continue to resist attempts by any group or spokesman for any group to impugn the judgment of any qualified doctor of medicine in performing any services for which he is qualified and be it further

Resolved That a copy of this resolution be forwarded to the American Medical Association and the American College of Surgeons

(7) Resolutions on Dr Hawley

WHEREAS The Lackawanna County Medical Society a component part of the Medical Society of the State of Pennsylvania and the American Medical Association the parent body of organized American medicine is disturbed by the disservice caused by the interview of the director of the American College of Surgeons in the lay press dealing in unethical medical practice and

WHEREAS This interview with the press has tended to cast a cloak of distrust fear and suspicion upon all practitioners of medicine and American hospitals and

WHEREAS The director of the American College of Surgeons could have officially registered complaints of unethical medical practice to the proper committee or committees of the American Medical Association where controversies of this nature are ordinarily debated instead of through the public press and

WHEREAS His statements discrediting the mutual relationship existing between physician surgeon and hospital patient do not serve in the best interests of the American public the American hospitals, and American medicine therefore be it

Resolved That the Lackawanna County Medical Society gives full endorsement to the statements made by Dr Edward McCormick of the American Medical Association in answer to the director of the American College of Surgeons and be it further

Resolved That a copy of this resolution be forwarded to the House of Delegates of the American Medical Association.

(8) Resolutions on Statements for Publication

WHEREAS Certain spokesmen for an allied medical organization and certain physicians who have written articles have in recent months made statements for publication that would tend to divide the doctors into warring groups and undermine the confidence of the public in the physician of their choice and

WHEREAS The support of newspapers and magazines has been openly sought by these groups in fighting an alleged evil instead of the usual courses open to them through the offices of the parent organization namely the American Medical Association, and

WHEREAS Many of the statements of these spokesmen for some of the allied medical organizations are (A) beneath the dignity that doctors strive to attain for their profession and (B) inclined or intended to cast aspersions on arouse suspicions against or undermine the public confidence in any particular group within the medical profession therefore be it

Resolved That the House of Delegates of the American Medical Association go on record as being opposed to this serious breach of etiquette and of ethics and be it further

Resolved That the Judicial Council be instructed to take the necessary steps to discipline the offenders or prevent the recurrence of unwarranted attack of one group of physicians by another and be it further

Resolved That the Judicial Council take the necessary action to implement a reasonable regulatory procedure which would prevent recurrence of these unfortunate articles in the lay press and to incorporate a press radio and television code at the national level with authority to regulate and pass on medical press radio and television releases by members of the American Medical Association

(9) Resolutions on Dr Hawley, F A C S

WHEREAS Dr Paul R. Hawley the Director of the American College of Surgeons who lists his address as 40 East Erie Street Chicago Illinois a general practitioner and not a member of the American Medical Association recently was invited by the editors of the *U S News and World Report* a lay magazine of national circulation and distribution to their conference room, where there took place a certain interview appearing in the February 20 1953 issue on pages 48 to 55 both inclusive a true and correct copy of which interview is quoted below and it appears that said interview consisted of many questions propounded to and answered by Dr Hawley on a variety of subjects touching the medical profession and the conduct of its members some excerpts of which are as follows

Q It is your contention Dr Hawley that fee splitting among doctors is wrong?

A Fee splitting results in a lot of bad surgery and a terrible lot of unnecessary surgery

Q Does this ghost surgeon work by an x ray? How does he know about where to cut?

A Of course he can have anything he may need for the operation but nine times out of ten no He just takes the word of the doctor who tells him what he thinks is wrong.

Q He is like a butcher

A A meat cutter One of my friends likes to call them hewers of flesh and drawers of blood

Q Is there any tendency toward abuse in those things? (Referring to fees in sickness funds)

A On a wide scale no In isolated spots yes. I don't know whether you have noticed it out in California or not there have been 200 doctors out there who have been chiseling on the Blue Shield Fund

Q Isn't all this crusading against unethical practices in medicine going to undermine public confidence in physicians?

A Yes there is that definite reaction to expect My only answer to that would be that the profession has brought it on themselves and

WHEREAS It appears that the answers of Dr Hawley in said interview contain misstatements and distortions of fact, unfounded and uncorroborated charges platitudes innuendoes and generalizations with implications of a pernicious and unsavory nature individual and collective self laudation of grandiose proportions and scurrilous and derogatory remarks tending to bring the medical profession in disrepute and to make it subject to public suspicion ridicule and scorn and

WHEREAS In an unprecedented meeting of the Board of Regents of the American College of Surgeons as reported in newspapers with national and international coverage on or about September 25 1952 the regents asked the aid of newspapers not of medical associations and forums in educating the public to certain evils four of the members being directly quoted on the subject and the same ideas with unqualified amplifications and ramifications were echoed by Dr Hawley in his interview above referred to and

WHEREAS It further appears that Dr Hawley in said interview when asked about the selection of a doctor replied if I had any choice

I would not allow anybody to go into my belly who was not a member of the American College of Surgeons or a diplomate of the American Board of Surgery, that he volunteered the statement that "We in the College of Surgeons investigate all possible unethical practice unnecessary surgery ghost surgery fee splitting" that when questioned If a hospital has your certificate on the wall would it be likely to do this type of surgery (referring to ghost surgery) Dr Hawley replied Oh no But we have given up our own certification and it appears that all of said answers were self-laudations which defy the traditions and lower the moral standard of the medical profession and

were deliberately designed to promote and elevate the American College of Surgeons at the expense of all in the medical profession who are not members of said College and that in view of these public pronouncements and others of a similar vein there exists a serious doubt as to whether the American College of Surgeons whose representatives sit on the boards for accrediting hospitals can render an impartial and unbiased report in the performance of their duties and

WHEREAS The American Medical Association is the supreme voice and authority in all matters pertaining to and affecting the medical profession and all other constituent organizations being a part of the whole cannot be greater than the whole the American College of Surgeons through its director and regents has attempted to arrogate unto itself vast powers which it does not possess and has held itself out as the palladium of medical virtue It would be catastrophic were other organizations within the American Medical Association seeing this precedent of unbridled and unlicensed newspaper and magazine comments go unchallenged to issue criminalizations and recriminations in airing of medical problems through the medium of lay publications as a consequence of which there would be chaos and confusion of voices and as a resultant the further undermining of public confidence in the medical profession and it is therefore necessary that a thorough inquiry and review be made of this entire situation a policy formulated and established and remedial measures adopted now therefore be it

Resolved That the Congress of Delegates of the American Academy of General Practice recommends that the above conditions in the medical profession be presented to the various state chapters of the American Academy of General Practice The West Virginia Chapter of the American Academy of General Practice urges its members to present to their respective county medical societies the above report with a request for a thorough inquiry review and remedial action at the earliest date, and be it further

Resolved That the Congress of Delegates of the American Academy of General Practice and the Board of Directors of the West Virginia Chapter recommends that the above report be transmitted in its entirety to the official West Virginia delegates of the American Medical Association at the earliest possible date for the institution of disciplinary action

(10) Resolution on Controlling Public Expressions of Members

WHEREAS The American Academy of General Practice realizes that ill advised unfounded false misleading and vitriolic news releases or state ments such as the recent interview published in the magazine *U S News and World Report* by one who takes it upon himself to assume the role of spokesman for an honored and respected medical organization can do infinitely more harm to an understanding between doctors of medicine and the American public than can be corrected by years of patient thoughtful and even considered effort, and

WHEREAS The American Academy of General Practice and the West Virginia Chapter like all other organized groups of doctors respects its position as a subsidiary or constituent of the parent organization of all medical doctors in the United States viz. the American Medical Association and

WHEREAS The American Academy of General Practice and the West Virginia Chapter seek to take any steps necessary to assist in effecting a peaceful unanimity rather than a cacophonous division within the ranks of American doctors and

WHEREAS The West Virginia Chapter of the American Academy of General Practice firmly steadfastly and sincerely believes in the basic honor both personal and professional of the medical doctors of the United States and

WHEREAS The general practitioners of America neither have nor desire to have a quarrel with any group of medical specialists because among the specialty groups are many respected honest and skillful men whom we summon for counsel and help and

WHEREAS The American Academy of General Practice believes that the recent unsavory pseudo-exposé by the Director of the American College of Surgeons forces on the medical doctors of America an urgent necessity for the settlement of certain basic issues to prevent future assaults on the honor integrity and professional standing of general practitioners and the entire medical profession and

WHEREAS The American Academy of General Practice believes this task can only be accomplished by and through the American Medical Association therefore be it

Resolved That 1 The American Medical Association be asked to consider some means of controlling public expressions of its members which are (a) beneath the dignity doctors strive to attain for their profession (b) inclined or intended to cast aspersions on arouse suspicion against or undermine the public confidence in any particular group within the medical profession and (c) possible acts or attempts to gain unfairly preference for any one portion of group of doctors above another because each group of doctors has its service to perform within the economy of medical practice and such acts are too often the product of selfish motives (See Chapter III Article I Sections 1 and 4 Principles of Medical Ethics)

2 The American Medical Association be asked to resist attempts by any group or by a spokesman for any group to impugn the judgment of the general practitioner or other qualified doctor of medicine in performing any service for which he is qualified

3 The American Medical Association be asked to define explicitly a method by which joint or combined bills covering the professional services of several doctors in respect of a single case may be rendered to a patient or his legally authorized agent or the insurance company for

the patient by one doctor acting for himself and those other doctors who may be associated with him in treating the single case

4 The American Medical Association be asked to distribute and disseminate actively and thoroughly to the American people information as to the attitude of the doctors in opposition to exorbitant fees unnecessary surgery ghost surgery split fees commissions and referral fees but at the same time to do all in its power to reassure the public that although a single infraction of medical ethics is serious still such unethical practices are the exception rather than the rule and that the doctors will make every effort to eliminate such unethical conduct as may exist

5 The American Medical Association be enjoined to disclose more adequately through its public relations media the functions of a medical doctor expand the understanding of uninformed people of doctor-patient relationships and ethics and take steps to strengthen any programs for improvement of the understanding by doctors of doctor-patient relationships and be it further

Resolved That 1 A copy of these resolutions be forwarded to the West Virginia delegates of the American Medical Association and that said officers be requested to refer them to the appropriate committees commissions or councils of such Association for study and action, 2 The officers of the American Medical Association be respectfully requested to advise the president of the West Virginia Academy of General Practice in respect to the disposition and action taken after due consideration by the American Medical Association and 3 The president of the West Virginia Academy of General Practice shall report to the West Virginia Academy of General Practice at its next annual meeting what shall have occurred in respect hereto

(11) Resolution on Medical Ethics

WHEREAS It has become the practice of some organizations of various groups within the profession of medicine to state and interpret codes of professional ethics and

WHEREAS Such practice tends to develop statements in different word ing leading to varying interpretations now therefore be it

Resolved That the Principles of Medical Ethics as stated interpreted and applied by the American Medical Association shall be considered as the only fundamental and controlling application of ethics to this profession and any statement by organizations within the general profession of medicine be considered by the members of the American Medical Association as advancing only views of a particular group and as without official sanction of the entire profession as represented by the American Medical Association

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr George S Klump, Chairman, presented the following report, which was adopted

The 11 resolutions dealing with publicity regarding unethical conduct of physicians were considered conjointly The resolutions were introduced by Drs Ludwig of California, Orr of Florida, English of Illinois, Earl of Minnesota, Kenney of New York, Stevenson of Oklahoma, Appel of Pennsylvania, Copeland of Texas, Holroyd of West Virginia (2) and Stovall of Wisconsin

These resolutions were stimulated by recent newspaper and magazine articles reporting statements attributed to an official spokesman of an allied medical organization The members of this organization are also members of the American Medical Association Recognizing the importance of the general problem involved and the proper interest of the public as well as that of the profession, your reference committee devoted a major portion of its open hearing to matters contained in these resolutions All of them were carefully studied Your committee recommends no action on these resolutions but instead that the House give careful objective consideration to the ethical problem involved The principal emphasis of these 11 resolutions may be summarized by the following statement patterned after the resolution introduced by the delegate from Wisconsin

The Principles of Medical Ethics as formulated interpreted and applied by the American Medical Association must be considered the only fundamental and controlling application of ethics for the entire profession Any statement relating to ethical matters by other organizations within the general profession of medicine advance views of only a particular group and is without official sanction of the entire profession as represented by the American Medical Association

Two of the 11 resolutions request, among other things, the development of an approved method for joint billing In addition, the committee received for information the Revised Statement of the Principles of Medical Ethics approved by the Executive Council of the Iowa State Medical Society on Jan 9, 1953 It is the opinion of your committee that matters of this nature should first be studied by the Judicial Council

Your committee calls the attention of the House to the current opinion of the Judicial Council regarding the matters of fee splitting and methods of billing published in THE JOURNAL for Dec 27, 1952

Your reference committee believes that the harm done to the public and to the profession by the current articles which lower the confidence patients have in their doctors cannot be objectively evaluated This highlights the fact that, when individuals or groups without official status in the American Medical Association utter or publish ill-considered statements, the result too often is that the confidence of the public in the medical profession is placed in jeopardy

Your reference committee believes that the members of the House of Delegates have demonstrated their devotion over the years to the principles of American democracy This devotion includes the right of free speech With this, your committee agrees unqualifiedly

Broad generalization, ill advised and poorly prepared statements that often fail to convey the intended meaning are most unfortunate and are to be deplored Destructive critical comments serve no useful purpose Your committee has the utmost confidence that the great majority of our members are entirely capable of avoiding these pitfalls without additional advice from this committee

Your reference committee claims no originality in stating an opinion often expressed by official spokesmen for the American Medical Association that some doctors of medicine violate the Principles of Medical Ethics The committee believes that this involves relatively few physicians and that the geographical distribution is spotty Human nature being what it is this will probably always be true The method evolved for dealing with the problems of unethical conduct and practices by the American Medical Association, while far short of perfection, is still the best and most practical means of correcting these abuses and safeguarding the best interests of the public This method is being and will continue to be followed Dr McCormick in his Inaugural Address called on constituent associations to become increasingly vigilant and aggressive in the pursuit and correction of abuses Many of his predecessors have emphasized this continued need, which is and always will be present, since doctors are subject to the same weaknesses of flesh and spirit as are other persons

The American Medical Association must now and in the future always continue to enunciate to its members and to the public its stand on matters pertaining to abuses and evils in the practice of medicine A positive public relations program must be maintained pointing out the good things the members of the American Medical Association are doing to promote the public health and welfare of the citizens of this country

Resolutions on Federal Legislation

Dr J Lafe Ludwig, California, introduced the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations

WHEREAS Many issues and policies affecting the American people are being made by national law and international agreements and

WHEREAS The practice of medicine may be affected economically and in a broad scientific sense, and

WHEREAS The American people are always vulnerable to attempts at collectivism through legislative channels and

WHEREAS Our medical societies have contained themselves too long and should now assume the offensive on these matters now therefore be it

Resolved That this House of Delegates be alerted to this particular problem and be it further

Resolved That this House of Delegates heartily endorses and urges every member of the Congress to adopt Senate Joint Resolution Number 1 the Bricker Resolution

Resolution on Bricker Resolution

Dr C H Richardson, Georgia, introduced the following resolution, which was referred to the Reference Committee on Legislation and Public Relations

WHEREAS The House of Delegates of the Medical Association of Georgia has endorsed the position of the American Medical Association in forming an amendment to the Constitution of the United States which will provide that no treaty or executive agreement shall be made which conflicts with any provision of the constitution or which may operate to

regulate any of the purely domestic affairs of the United States and to that end endorses the Bricker Resolution in the national Congress there fore be it

Resolved That the House of Delegates of the American Medical Association further endorse this sentiment

Report of Reference Committee on Legislation and Public Relations

Dr George S Klump, Chairman, presented the following report, which was adopted

Two resolutions were presented asking for the endorsement of the Bricker resolution, one from the Georgia delegation, and one from the California Medical Association After consultation with representatives of the Committee on Legislation and others, your committee submits the following substitute resolution

Resolved That the House of Delegates endorse the principles embodied in Senate Joint Resolution No 1

This is a reaffirmation of a previous action of this House

Resolution on Freedom Under God

Dr J Lafe Ludwig California, introduced the following resolution, which was referred to the Reference Committee on Miscellaneous Business

WHEREAS Our Founding Fathers were deeply and reverently aware that freedom for the individual can be secured and preserved only if the individual recognizes and assumes responsibility for the intelligent exercise of that freedom and

WHEREAS The Declaration of Independence acknowledges the Great Creator as the source of all freedom and

WHEREAS There is grave and serious danger that in our modern society with its remarkable material achievements and accompanying creature comforts freedom may disappear through thoughtless and careless disregard for its origin now therefore be it

Resolved That the House of Delegates of the American Medical Association heartily endorses the third annual Freedom Under God Observance of Independence Week during the period of June 28 to July 5, as sponsored by Spiritual Mobilization

Report of Reference Committee on Miscellaneous Business

Dr Walter P Anderton, Chairman, submitted the following report, which was adopted

Your Reference Committee on Miscellaneous Business has considered the resolution introduced by Dr J Lafe Ludwig for the California Medical Association entitled Freedom Under God Your committee, having heard this resolution discussed, believes that the American Medical Association has many members interested in and identified with various creeds, with differences of opinions and beliefs It believes that the adoption of the aforesaid resolution would establish an unwise precedent, and therefore recommends no action on it

Resolution on Today's Health

Dr Louis M Orr II, Florida, introduced the following resolution, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary

WHEREAS We are highly conscious of the potency of the physician's office as an integral part of sound medical public relations and

WHEREAS We are of the belief that the American Medical Association's publication *Today's Health* is designed to serve the interests of the lay public from the standpoint of good health information and

WHEREAS We feel more physicians offices should have a copy of *Today's Health* available to the physicians patients now therefore be it

Resolved That the Florida Medical Association petition the House of Delegates of the American Medical Association to authorize the setting aside of \$1.50 of the annual dues of each of the dues-paying members of the American Medical Association for the purpose of purchasing a subscription to *Today's Health* to be addressed to the office of each of the physicians

Report of Reference Committee on Reports of Board of Trustees and Secretary

Dr H Russell Brown, Chairman, presented the following report, which was adopted

Resolution on Today's Health The adoption of this resolution would necessarily cause a large increase in the expenditure of funds by the Association In addition, other plans

have been proposed for a wider distribution of *Today's Health* Therefore, your committee recommends that this resolution be not adopted

Resolution on General Practitioner Award

Dr Louis M Orr II, Florida, presented the following resolution, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary

WHEREAS The medical profession and the nation's medical schools are currently making a definite effort to encourage a revived interest in general practice and

WHEREAS There is positive evidence that during the past four or five years an increasing percentage of medical students plan to enter general practice and

WHEREAS Throughout the nation many young physicians already are making excellent records as general practitioners therefore be it

Resolved That the American Medical Association in its annual selection of the General Practitioner of the Year make a definite effort to give consideration to the younger physicians who are doing fine work as family doctors

Report of Reference Committee on Reports of Board of Trustees and Secretary

Dr H Russell Brown, Chairman, submitted the following report, which was adopted

Resolution on General Practitioner Award After careful consideration of this resolution, your committee believes that no action on it is needed, because adequate consideration is already being given to its objective by the Board of Trustees

Resolution on Department of Health, Education, and Welfare

Dr C H Richardson, Georgia, introduced the following resolution, which was referred to the Reference Committee on Legislation and Public Relations

Resolved That the House of Delegates of the Medical Association of Georgia endorse the action of the House of Delegates of the American Medical Association in approving the action of the federal government in combining the Federal Security Agency into a Department of Health Education and Welfare with cabinet status

Report of Reference Committee on Legislation and Public Relations

Dr George S Klump, Chairman, presented the following report, which was adopted

Dr Richardson of Georgia introduced a resolution endorsing the action of the House of Delegates of the American Medical Association and approving the action of the Federal government in creating a Department of Health, Education and Welfare, with cabinet status The reference committee commends the Medical Association of Georgia on this action

Resolution on Insurance Rates in Partnerships

Dr Wendell C Stover, Indiana introduced the following resolution on Insurance Rates in Partnerships, which was referred to the Reference Committee on Insurance and Medical Service

WHEREAS Information has been obtained by the headquarters office of the Indiana State Medical Association that certain medical malpractice insurance is being written on medical partnerships in which an extra charge is made to cover not only each of the members but also the partnership on the basis that it is a separate entity the same as the individual members of the partnership and that this results in requiring a partnership consisting of two members to pay a premium of three times the rate for which an individual physician could obtain insurance instead of two times the rate although the amount of risk involved could be no greater than the combined risk on two individual physicians and

WHEREAS This method of charging premium rates results in discrimination against physician partnership and

WHEREAS The American Medical Association is making a study of medical malpractice insurance problems therefore be it

Resolved That the Indiana State Medical Association recommends and suggests that this method of ascertaining premium rates for insurance on medical partnerships be brought to the attention of the American Medical Association House of Delegates and that the delegates from Indiana to the House of Delegates be and hereby are directed to present this resolution to the next meeting of the House of Delegates of the American Medical Association and urge that the Association instruct its committee studying malpractice insurance to take appropriate action to eliminate this element of discrimination in medical malpractice insurance policies.

Report of Reference Committee on Insurance and Medical Service

Dr Gerald V Caughlan, Chairman, submitted the following report, which was adopted

Resolution on Insurance Rates in Partnerships This resolution, introduced for the Indiana State Medical Association, has to do with insurance rates in partnerships and describes a situation which deals with premium rates for malpractice insurance on medical partnerships Inasmuch as the Council on Medical Service is at present conducting a survey regarding malpractice insurance, your committee recommends that this matter be referred to the Council on Medical Service calling attention to this situation

Resolution on Advertising of Medical Products

Dr Wendell C Stover, Indiana, introduced the following resolutions, which were referred to the Reference Committee on Miscellaneous Business

WHEREAS The advertising of therapeutic agents in the official journals of the American Medical Association carries the implication of approval of the material by the Association and

WHEREAS Every method of promotion of any products bearing the seal of a council of the American Medical Association is under the control of the council and

WHEREAS It is not difficult for advertising material to be so devised as to convey a somewhat different total impact from what is actually justified now therefore be it

Resolved That the Indiana State Medical Association declares that the appropriate agencies of the American Medical Association should exercise diligent care that advertising in the official journals and that promotion of approved products should conform both in spirit and in detail with the actual safety and the truly established indications of the products and be it further

Resolved That delegates from the Indiana State Medical Association be instructed to present this resolution to the House of Delegates of the American Medical Association in New York this year

Resolution on Magazine Trustee

Dr Wendell C Stover, Indiana, presented the following resolutions, which were referred to the Reference Committee on Medical Education and Hospitals

WHEREAS The American Hospital Association publishes a magazine entitled *Trustee* and

WHEREAS The editorial policies of the magazine *Trustee* are determined only by representatives of the American Hospital Association and

WHEREAS This magazine *Trustee* is distributed to administrators and board members of hospitals throughout the country and

WHEREAS This magazine presents only the views and opinions of the American Hospital Association and the hospital administrators regarding problems of hospitals and the medical staffs of hospitals, therefore be it

Resolved That the House of Delegates of the American Medical Association go on record as recommending the establishment of a liaison committee with the administrators and boards of trustees of hospitals setting forth the views of physicians regarding physician-hospital relationships and other information of mutual interest to physicians and hospitals and be it further

Resolved That a copy of this resolution be forwarded to the American Medical Association with the request that the resolution be presented to the House of Delegates of the American Medical Association for its consideration and approval

Report of Reference Committee on Medical Education and Hospitals

Dr Herbert B Wright, Chairman, submitted the following report, which was adopted

The resolution submitted by Dr Wendell C Stover of the Indiana delegation concerning the magazine *Trustee* as it deals with the physician hospital relationship recommends that a liaison committee be established between the American Medical Association, administrators, and board of trustees of hospitals It is the opinion of your reference committee that there is much being done on the national level along these lines and that further efforts could best be considered at state and local levels

Resolution on American Medical Education Foundation

Dr Harlan English, Illinois, introduced the following resolution, which was referred to the Reference Committee on Medical Education and Hospitals

WHEREAS The Illinois State Medical Society recognizing the need for continuing support of the American Medical Education Foundation has by action of its House of Delegates in 1952 and again in 1953 collected \$20 per member per year earmarked for that fund, now therefore be it

Resolved That the House of Delegates of the American Medical Association recommend that the Illinois plan be submitted to each constituent association of the American Medical Association as a reasonable equitable and very satisfactory solution to the problem of physician responsibility to the American Medical Education Foundation

Report of Reference Committee on Medical Education and Hospitals

Dr Herbert B Wright, Chairman, presented the following report, which was adopted

Regarding the resolution introduced by Dr Harlan English for the Illinois State Medical Society concerning the American Medical Education Foundation in which they are recommending to the various states the suggestion to follow the Illinois plan in the collection of funds for the American Medical Education Foundation, the Illinois plan is a reasonable, equitable, and satisfactory solution to the problem of physician responsibility to the Foundation in aiding medical schools through the assessment of dues of \$20 per member per year which is earmarked for this specific purpose Your reference committee unanimously approved this resolution and recommends its adoption

Resolutions on Principles of Medical Ethics

Dr Harlan English, Illinois, introduced the following resolutions, which were referred to the Reference Committee on Amendments to the Constitution and Bylaws

WHEREAS The Principles of Medical Ethics of the American Medical Association and the interpretations thereof have as a result of recent rather widely publicized diversified expressions of opinion been the subject of much discussion among the various individuals and many groups within organized medicine and

WHEREAS The resultant differences of opinion have caused considerable unrest and some misgivings within the medical profession due primarily to the implications of improper conduct on the part of the profession as a whole because of the improper acts of a small minority of members of the profession and

WHEREAS A number of members of the profession claim as proper the issuance of an itemized joint bill when more than one physician participates actively in the care of a patient because of local acceptance of the procedure by both the public and members of the profession and

WHEREAS The Principles of Medical Ethics of the American Medical Association while very explicit in consideration of duties of physicians in consultations and in many other matters of physicians relations with one another do not give sufficient consideration to the duties of physicians in the joint care of a patient therefore be it

Resolved That the House of Delegates request the Judicial Council of the American Medical Association to give further consideration to the interpretations of the Principles of Medical Ethics with special references to proper billing procedures and be it further

Resolved That the Council on Constitution and Bylaws of the American Medical Association at present engaged in a revision of the Principles of Medical Ethics, be requested to give consideration to the drawing up of an amendment dealing with the duties of physicians in instances of active cooperative care of a patient by two or more physicians defining proper conduct and responsibilities of the physicians involved in such care and stating procedures to be followed in properly billing the patient for services rendered to enable the physicians participating in such a case to obtain adequate compensation.

Report of Reference Committee on Amendments to the Constitution and Bylaws

Dr John W Green, Chairman, presented the following report, which was adopted

Resolutions on Principles of Medical Ethics Your committee has given these resolutions very serious consideration and approves the resolutions changed as follows

Resolved That the Council on Constitution and Bylaws of the American Medical Association at present engaged in a revision of the Principles of Medical Ethics be requested to give consideration to the matter of the drawing up of an amendment dealing with the duties of physicians in instances of active cooperative care of a patient by two or more physicians defining proper conduct and responsibilities of the physicians involved in such care and stating procedure to be followed in properly billing the patient for services rendered and be it further

Resolved That the Council on Constitution and Bylaws be requested to seek the advice of the Judicial Council in its consideration of this problem

Resolutions on Proposed 23d Amendment to Constitution of United States (H J Res 123)

Dr Harlan English, Illinois, introduced the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations

WHEREAS Congressman Ralph W Gwinn on January 13, 1953 introduced H J Res 123 which would initiate an amendment to the Constitution relative to prohibiting the United States government from engaging in any business professional commercial financial or industrial enterprise except as specified in the Constitution (referred to as the Proposed 23rd Amendment) therefore be it

Resolved That the Delegates of the Illinois State Medical Society in regular session assembled do hereby express their full support of H J Res 123 and urge the Congress of the United States to pass H J Res 123 and be it further

Resolved That a copy of this resolution be spread on the minutes of this meeting and that copies be sent to the President of the United States and to all members of Congress and of the House of Delegates of the American Medical Association

Report of Reference Committee on Legislation and Public Relations

Dr George S Klump, Chairman, presented the following report, which was adopted

A resolution introduced by Dr English of Illinois asking for support of H J Res 123 has been seriously considered. The principles enunciated in this resolution are essentially the same as those endorsed by this House four years ago. Your committee recommends that this bill be studied by the Committee on Legislation together with other similar proposed legislation, and that no further action be taken on this resolution at this time.

Resolutions on International Labor Organization

Dr Harlan English, Illinois, introduced the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations

WHEREAS The International Labor Organization meeting in Geneva in June 1952 approved a Convention (treaty) on minimum standards of social security in nine fields—medical care sickness benefits unemployment benefits old age benefits unemployment injury benefits family benefits maternity benefits invalidity benefits, and survivor benefits and

WHEREAS Ratification of this Convention by the United States Senate would place this country under obligation to put at least four of the nine programs in operation and

WHEREAS Ratification of the Convention by the United States Senate would be a step toward plunging this nation further into nation-destroying socialism and

WHEREAS The United States Congress in 1935 voted this country a member state of the International Labor Organization without public hearings or debate therefore be it

Resolved That the members of the Illinois State Medical Society recommend and urge the Senate of the United States not to ratify this Convention and to withdraw this country from membership in the International Labor Organization and be it further

Resolved That a copy of this resolution be spread on the minutes of this meeting and that copies of it be sent to all members of the Senate and of the House of Delegates of the American Medical Association.

Report of Reference Committee on Legislation and Public Relations

Dr George S Klump, Chairman, submitted the following report, which was adopted

A resolution introduced by the Illinois State Medical Society dealing with the ratification of the Geneva June, 1952, Convention of the ILO has been studied. Your committee approves this resolution which reaffirms an action previously taken by the House.

Resolution on Creation of Department of Health

Dr Charles G Hayden, Massachusetts, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations

WHEREAS The continuing threat of enemy attack on the civilian population of the United States especially in industrial areas makes it imperative that there be formulated an over all medical plan providing for the best possible utilization of all medical personnel and facilities in the event of all-out war and

WHEREAS The development and implementation of such a plan requires that virtually all federal medical activities be coordinated in a single federal agency and

WHEREAS The House of Delegates on March 14 1953 reaffirmed its stand in favor of an independent Department of Health and

WHEREAS The House of Delegates in December 1950 recommended exclusion of the medical services of the Armed Forces and Veterans Administration from any independent agency with executive status and

WHEREAS Exclusion of the medical services of the Veterans Administration and certain medical activities of the Armed Forces from a Department of Health would result in a Department consisting essentially of the Public Health Service and

WHEREAS It is unrealistic to argue for the establishment of a Department of Health consisting essentially of the Public Health Service therefore be it

Resolved That the Speaker of the House of Delegates be and is hereby directed to appoint a representative committee to study and report as soon as possible on the feasibility of establishing a Department of Health to include the following functions facilities and personnel as recommended by the Commission on the Organization of the Executive Branch of the Government (Hoover commission)

(A) The general hospitals of the Armed Forces in the continental United States (except a medical center for each of the three services) and station hospitals (certain of which the Navy calls dispensaries) in the continental United States except those at outlying posts so located that other hospitals of the Department of Health would not be near enough to provide the care required

(B) The hospital functions of the Veterans Administration in toto including the outpatient services in the field offices of the Veterans Administration

(C) The four nonmilitary hospitals in the Canal Zone

(D) The hospitals of the Public Health Service

(E) The functions facilities and personnel of the Public Health Service

Report of Reference Committee on Legislation and Public Relations

Dr George S Klump, Chairman, submitted the following report, which was adopted

Your reference committee studied the resolution presented by Dr Hayden of Massachusetts on the subject of creation of a Department of Health. Your reference committee reaffirms the stand of the House that it is the continuing policy of the American Medical Association to strive for the creation of a federal Department of Health. Now working on this problem is a subcommittee of the Council on Medical Service known as the Committee on Federal Medical Services which is charged with the responsibility of studying all activities in this field. It is the opinion of your reference committee that no useful purpose could be gained by the creation of a separate committee as recommended in the resolution, as this would duplicate the function and activities of the current committee. The reference committee is of the opinion that the subcommittee of the Council should be asked to study the various points outlined in this resolution.

Resolution on Payment of Back Dues

Dr George A Earl, Minnesota, introduced the following resolution, which was referred to the Reference Committee on Amendments to the Constitution and Bylaws

WHEREAS The Minnesota State Medical Association has under consideration the payment of dues in the American Medical Association as one of the requirements for membership in the Minnesota State Medical Association and

WHEREAS The present regulations of the American Medical Association require the payment of back dues in the American Medical Association and

WHEREAS Such regulations jeopardize the enactment of such proposed change in the Bylaws of the Minnesota State Medical Association now therefore be it

Resolved That the American Medical Association be respectfully requested to alter its regulations so that in the event of such requirement being adopted by a constituent state society the payment of dues for such current year be sufficient for membership in good standing in the American Medical Association without the payment of any back dues

Report of Reference Committee on Amendments to the Constitution and Bylaws

Dr John W Green, Chairman, submitted the following report, which was adopted

Resolution on Payment of Back Dues Your committee approves this resolution in principle. It believes that when a state association makes it mandatory to belong to the American Medical Association in order to be a member of the state medical society, then this provision of the resolution is sound policy. We do, however, believe that the various state

medical associations should have time to study this resolution. We have been advised that some legal problems may arise at the state level. Your committee therefore recommends that copies of this resolution, with a copy of the remarks of the committee, be sent to the individual state medical societies, and that this resolution be considered at the December, 1953, interim session of the House of Delegates.

Resolution on Selection of Interns

Dr Paul Baldwin, Missouri, introduced the following resolution, which was referred to the Reference Committee on Medical Education and Hospitals:

WHEREAS The method of the cooperative selection of interns also known as the matching system has been in operation for two years under the joint sponsorship of the major national hospital associations and of the American Medical Association Council on Medical Education and Hospitals and

WHEREAS From the point of view of students the new system has provided no benefit that was not provided as well or better under individual negotiation but has on the contrary fostered undesirable arrangements in violation of the letter and spirit of the system and its objectives and

WHEREAS The new method has proved ineffective in aiding hospitals to avoid confusion but has prevented them from making firm and timely commitments with promising students and

WHEREAS The administration of the new system involves the annual expenditure of from \$35 000 to \$40 000 paid jointly by hospitals and students and

WHEREAS Insofar as the system is effective at all it operates to the unfair advantage of medical school teaching centers and to the relative disadvantage of hospitals without university affiliations particularly in rural areas now therefore be it

Resolved By the House of Delegates of the American Medical Association that the cooperative or 'matching' system of intern selection be abolished

Resolution on Restudy of Matching Plan for Internships

Dr Carlton E Wertz, New York, introduced the following resolution, which was referred to the Reference Committee on Medical Education and Hospitals:

WHEREAS The Matching Plan instituted by the American Medical Association approximately three years ago for the apportionment of interns has resulted in the channelling of applicants for internships into teaching hospitals and medical centers with full-time clinical directors and

WHEREAS The choice of applicants for internships frequently coercive has caused the matching plan to work to the detriment of smaller hospitals by depriving them of an adequate allocation of interns and

WHEREAS The smaller hospitals must still carry the bulk of patient load and to do so effectively must have adequate house staffs, now therefore be it

Resolved That the House of Delegates of the American Medical Association hereby condemns the interference of teaching institutions with the operation of the matching plan and asks for restudy of the problem so that a more equitable allocation of interns may be achieved

Report of Reference Committee on Medical Education and Hospitals

Dr Herbert B Wright, Chairman, presented the following report, which was adopted:

Because of the high interest in the intern situation the deliberations of your reference committee involved much discussion of the problem of internships. To clarify in the minds of the delegates the position of the National Intern Matching Program, Incorporated, your reference committee would like to call to your attention the fact that this organization is a separate and distinct corporation having been in existence for three years. The member organizations of this corporation and their vote of power are represented as follows: American Hospital Association, 2 votes; American Protestant Hospital Association, 1 vote; Association of American Medical Colleges, 3 votes; Catholic Hospital Association, 1 vote; and Council on Medical Education and Hospitals of the American Medical Association, 3 votes. The function of this corporation is to act as a clearing house for applications for internships. The corporation has an agreement both with the student and with the hospital. It does not attempt in any way whatever to influence the placing of interns, it has nothing to do with the stipend offered by hospitals nor with the educational program of hospitals, and it does not direct students to hospitals.

The Resolution on Selection of Interns, introduced by Dr Paul Baldwin of the Missouri State Medical Association, recommends that the cooperative or 'matching' system of intern selection be abolished. Your reference committee feels that the matching plan should not be discontinued and therefore disapproves of this resolution.

Your reference committee agrees with the resolution introduced by Dr Wertz for the Medical Society of the State of New York, which recommends that the House of Delegates condemn the interference of teaching institutions with the operation of the matching plan and asks for restudy of the problem so that a more equitable allocation of interns may be achieved. Your reference committee recommends that the American Medical Association representatives to the corporation known as the National Intern Matching Program, Inc., be instructed to request that corporation to restudy the problem and implement its improvement.

Resolutions on Physician Placement Conference

Dr John P Culpepper Jr, Mississippi, presented the following resolutions, which were referred to the Reference Committee on Insurance and Medical Service:

WHEREAS The Council on Medical Service conducted a conference on physician placement in Memphis, Tenn., in March 1953 for several southern and southwestern states and

WHEREAS This conference proved invaluable to the several participating constituent associations in the matter of disseminating information and fixing policy for physician placement, now therefore be it

Resolved That the Council on Medical Service be commended together with its most capable headquarters staff and be it further

Resolved That this type conference be conducted annually on a regional scale to the end that (1) a maximum number of state society officers may attend by travelling a minimum distance and (2) placement problems common to a restricted geographical region may be treated by the states involved

Report of Reference Committee on Insurance and Medical Service

Dr Gerald V Caughlan, Chairman, submitted the following report, which was adopted:

A resolution introduced by Dr John P Culpepper Jr, Mississippi State Medical Association, having to do with the subject of physician placement conferences was referred to this reference committee. The statement is made that a conference on physician placement in Memphis, Tenn., in March, 1953, was very successful and the recommendation is made that this type of conference be conducted annually on a regional scale to the end that a maximum number of state society officers may attend by traveling a minimum distance and placement problems common to a restricted geographical region may be treated by the states involved. Your committee studied this resolution and feels that these regional conferences are of value, and recommends that they be continued. Your committee commends the Council on Medical Service for the conduct of these conferences.

Resolution on Seating on American Medical Association Delegates

Dr John P Culpepper Jr introduced the following resolution, which was referred to the Reference Committee on Amendments to the Constitution and Bylaws:

WHEREAS Division Three, Chapter IX, Section 1 (B) of the Bylaws of the American Medical Association provides that delegates and alternates from constituent associations sections the various branches of the armed forces having organic medical facilities the United States Public Health Service and the Veterans Administration shall be selected for two-year terms and shall assume office on January 1 of the year succeeding their election or appointment and

WHEREAS No provision is made in these Bylaws for the interim seating of a delegate who may be additionally elected or appointed by reason of increased membership in a constituent association and

WHEREAS No orderly procedure is prescribed for unseating or retiring a delegate or delegates from a constituent association because of loss of membership and

WHEREAS There is no provision for the orderly retirement or unseating of a delegate who may be defeated for reelection and yet be eligible to represent his constituent association in two regular meetings following his defeat now therefore be it

Resolved That the following paragraph be added to the Division Chapter Section and subsection of the Bylaws referred to above

"When a constituent association enjoys sufficient gain in membership as to warrant an additional delegate, the Secretary of the American Medical Association shall so notify the constituent association. The additional delegate shall be elected or appointed as the case may be to serve a term of one year which shall be construed to mean the next annual meeting and the succeeding clinical or interim meeting. Following this term of office his seat shall be subject to reappointment or reelection provided the membership of the association warrants the allocation of his seat. When, on the other hand the membership of a constituent association decreases during a calendar year to such an extent that a delegate or delegates are no longer authorized that constituent association then the Secretary of the American Medical Association shall so inform the constituent association and the delegate or delegates in question shall be unseated and retired according to the most recently regulated elected or appointed seats from that association. Delegates elected or appointed from constituent associations shall assume office at the first annual meeting of the House of Delegates of the American Medical Association or on January 1 each event following their election, whichever comes first except that in no event may a delegate be certified to the Secretary of the American Medical Association later than May 31 prior to the annual meeting

Report of Reference Committee on Amendments to the Constitution and Bylaws

Dr John W Green, Chairman, presented the following report, which was adopted

Resolution on Seating of American Medical Association Delegates Your committee, after due consideration of this resolution, feels that because of the different conditions in the several states and because the committee is of the opinion that each state should decide the manner of election of its delegates, this resolution should be referred to the Council on Constitution and Bylaws without recommendation

Resolution on Derogatory Article

Dr John P Culpepper, Mississippi, introduced the following resolution which was referred to the Reference Committee on Miscellaneous Business

WHEREAS An article entitled 'The Doctor Cartel an Urgent Problem' was published in Home Life a nationally circulated magazine edition of May 1953 published by the Southern Baptist Convention and

WHEREAS The article written by one Jesse C. Burt Jr unfairly and wrongly portrays the medical profession and openly asserts that the American Medical Association has created a shortage of physicians by causing limitation on the enrolments of medical schools and

WHEREAS These assertions are contrary to fact and the constructive course pursued by the American Medical Association in undertaking to provide the best possible medical service for all now therefore be it

Resolved That the article and the misinformation it conveys be deplored and refuted and that the American Medical Association answer its libelous accusations with a true recounting of its program of medical service

Report of Reference Committee on Miscellaneous Business

Dr Walter P Anderton, Chairman, presented the following report, which was adopted

With regard to the resolution by Dr Culpepper of Mississippi calling attention to a derogatory article published in "Home Life," your committee is in complete agreement with Dr Culpepper and recommends passage of the resolution and its referral to the Board of Trustees for implementation

Resolutions on Compact of Western States for Medical Education (S 1515)

Dr Raymond F Peterson, Montana, introduced the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations

WHEREAS The future of this Nation and of the western states in particular is dependent on the quality of the education of its youth, and

WHEREAS Many of the western states individually do not have sufficient numbers of potential students to warrant the establishment and maintenance within their borders of institutions for all of the essential fields of professional and graduate training in medicine dentistry veterinary medicine and public health nor do all of the states have the financial ability to furnish within their borders institutions capable of providing acceptable standards of training in all of the fields mentioned above, and

WHEREAS It is believed that the western states or groups of such states within the region cooperatively can provide acceptable and efficient tax supported educational facilities to meet the needs of the region and of the students thereof and

WHEREAS The legislative bodies of at least seven of the western states have ratified the Compact for Western Regional Cooperation in Higher

Education and thereby have created and become members of the Western Interstate Commission for Higher Education, and

WHEREAS Section 10 of Article I of the Constitution of the United States provides that No State shall without the consent of Congress enter into any agreement or compact with another State and

WHEREAS The duly elected Senators from the western states have introduced a bill known as S 1515 in the United States Senate to give the required consent to the western states to create and operate the Western Interstate Commission for Higher Education and

WHEREAS Passage of this legislation will resolve and remove any legal restrictions which may confront the individual states or universities which ratify the Compact and thereby become members of the Commission now therefore be it

Resolved That the House of Delegates of the American Medical Association hereby endorse and urge immediate passage of S 1515 and that it instruct its Committee on Legislation and members of the staff of its Washington Office to encourage and promote passage of this legislation and be it further

Resolved That copies of this resolution be forwarded to the President of the United States the Secretary of the Department of Health Education and Welfare of the United States and the members of the United States Senate and House of Representatives

Report of Reference Committee on Legislation and Public Relations

Dr George S Klump, Chairman, presented the following report, which was adopted

The Montana resolution introduced by Dr Peterson requests endorsement of S 1515 Your reference committee looks with favor on the intent of the proposals relating to medical education contained in this bill but questions other features of the bill which may permit other unspecified activities Your committee recommends that the matter be studied by the Committee on Legislation with the advice of the Council on Medical Education and Hospitals

Resolutions on Portrayal of Physicians in Television and Radio Advertising

Dr Karl S J Hohlen, Nebraska, introduced the following resolutions, which were referred to the Reference Committee on Miscellaneous Business

WHEREAS Television and radio are using more and more frequently in their advertisements individuals who although not physicians portray the part and while garbed in white embellished with stethoscope or head mirror recommend to millions of listeners nostrums of all types and descriptions which supposedly cure many systemic diseases highly vitaminized products from bread and milk to toothpaste as well as cigarettes for their fancied effect on coughs and colds and

WHEREAS Physicians themselves have been used to corroborate the merits of certain products as well as the authenticity of claims made by certain manufacturers and have been depicted examining performers such as magicians to substantiate a claim as to their physical status before and after a mystic act on television all of which is contrary to the Principles of Medical Ethics of the American Medical Association and

WHEREAS These individuals in the light of their characterization imply that these products are accepted by the medical profession as being specifically ameliorative or curative and

WHEREAS Too large a percentage of our citizens who are credulous to such an approach are led astray as to the merits of these claims and thereby purchase and continue to use such nostrums at a time when they should be under the care of reputable physicians who would institute proper treatment and thereby enhance the possibilities of a return to health rather than lingering illness or death therefore be it

Resolved That the House of Delegates of the Nebraska State Medical Association meeting in annual session May 11 1953 petition the American Medical Association through its House of Delegates to request the Federal Communications Commission, the National Association of Radio and Television Broadcasters and the Federal Trade Commission to prohibit individuals from characterizing physicians and recommending products of any type or character as aids or remedies in the treatment of any ailment usual or unusual to the human and be it further

Resolved That the Judicial Council of the American Medical Association be requested to investigate this matter and censure those of the profession who by the aforementioned conduct violate the Principles of Medical Ethics and be it further

Resolved That copies of these resolutions be forwarded to the Council on Pharmacy and Chemistry and the Bureau of Legal Medicine and Legislation of the American Medical Association the Federal Communications Commission the National Association of Radio and Television Broadcasters and the Federal Trade Commission and be it further

Resolved That copies of these resolutions be transmitted to the state medical associations and through them to their component county medical societies urging them to forward similar resolutions to the American Medical Association the Federal Communications Commission the National Association of Radio and Television Broadcasters and the Federal Trade Commission

Report of Reference Committee on Miscellaneous Business

Dr Walter P Anderton, Chairman, presented the following report, which was adopted

Your committee has carefully considered the Nebraska resolutions concerning the portrayal of physicians in television and radio advertising, and agrees with the intent of the resolutions. It is, however, the opinion of your committee that the American Medical Association can accomplish more by offering cooperation than by adopting resolutions of condemnation. Your committee recommends that this matter be referred to the Board of Trustees, and further recommends that the Board confer with the Public Relations Department of the American Medical Association and then arrange a meeting of mutually interested parties in the radio and television industry. Your committee also recommends that county and state medical societies consult with and offer cooperation to their local radio and television stations in the solution of problems concerning the medical profession. It is believed that much can be accomplished in the national advertising field by bringing pressure on local stations through expressions of approval or disapproval by individual physicians.

Resolution on Doctor Draft Law

Dr A H Aaron, New York, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations

WHEREAS State and local advisory boards at considerable effort have determined a Special Registrant's status as being either essential or non-essential and have had this recommendation reversed by local boards under Selective Service therefore be it

Resolved That the Selective Service System be solicited to change the regulations so that wherein a state advisory committee's opinion and a local board's opinion differ that the status determined by the state advisory committee shall be the one of acceptance

Report of Reference Committee on Legislation and Public Relations

Dr George S Klump, Chairman, submitted the following report, which was adopted

In studying the resolution introduced by Dr Aaron of New York relating to the Doctor Draft Law, your reference committee had the benefit of the advice of several individuals who are working with state and local advisory committees to Selective Service and the Secretary of the Council on National Emergency Medical Service. Your committee understands that the objectives of this resolution were carefully considered by that Council and by the National Medical Advisory Committee and that an enabling amendment to the current draft legislation was not submitted, however, your committee is of the opinion that this matter is of sufficient importance to request the Council on National Emergency Medical Service to study further this aspect of the Doctor Draft Law.

Resolution on Reevaluation of Residency and Postgraduate Training

Dr R J Azzari, New York, introduced the following resolution, which was referred to the Reference Committee on Medical Education and Hospitals

WHEREAS Postgraduate medical education and residency training programs over recent years have been greatly influenced by the various specialty boards and have largely done away with the old preceptor systems which did have certain advantages, and

WHEREAS These specialty boards have been set up with the approval or cooperation of the Council on Medical Education and Hospitals of the American Medical Association and

WHEREAS The members of the governing bodies of the various boards and of the Council are largely university physicians and not men in the active practice of their profession and

WHEREAS This has tended to insure a steady output of residents trained for teaching or research but not for practice and

WHEREAS The nonuniversity hospitals and their specialists throughout the country who now have difficulty getting assistants or residents could provide a wide range of teaching material that is being largely overlooked at present therefore be it

Resolved That the House of Delegates of the American Medical Association appoint a committee representing both university teachers and practicing physicians to investigate and re-evaluate the basic funda-

mentals of the present postgraduate and residency training program and insure some representation of active practicing physicians on the various specialty boards and the Councils of the American Medical Association

Report of Reference Committee on Medical Education and Hospitals

Dr Herbert B Wright, Chairman, presented the following report, which was adopted

Resolution on Reevaluation of Residency and Postgraduate Training This resolution asks that a committee be appointed by the House of Delegates of the American Medical Association to investigate and reevaluate the basic fundamentals of the present postgraduate and residency training programs, and insure some representative of specialists in private practice on the various specialty boards and physicians in private practice on the Councils of the American Medical Association. While your reference committee approves of the principles involved, it disapproves of that portion of the resolution suggesting that a committee be appointed.

Resolution on Professional and Administrative Audit of Hospitals

Dr Edward P Flood, New York, introduced the following resolution, which was referred to the Reference Committee on Medical Education and Hospitals

WHEREAS Many small hospitals particularly in rural communities, do not receive the benefits of inspection by the Joint Commission on Accreditation of Hospitals and

WHEREAS Professional and administrative audits by the aforesaid Commission of small as well as large hospitals would tend toward improvement of medical care therefore be it

Resolved That the Board of Trustees of the American Medical Association is hereby requested to study the possibility of enlargement of the scope of the activities of the Joint Commission on Accreditation of Hospitals and if feasible to recommend such increase and to report to this House of Delegates at its annual session in 1954

Report of Reference Committee on Medical Education and Hospitals

Dr Herbert B Wright, Chairman, submitted the following report, which was adopted

Resolution on Professional and Administrative Audit of Hospitals This resolution presented by Dr Edward P Flood of the New York delegation emphasizes the fact that many small hospitals, particularly those in rural communities, have not received the benefit of inspection by the Joint Commission on Accreditation of Hospitals, and recommends that the Board of Trustees of the American Medical Association be requested to study the possibility of enlarging the activities of the Joint Commission on Accreditation of Hospitals. Your reference committee approves this resolution and recommends that it be referred to the Board of Trustees for implementation by the Joint Commission on Accreditation of Hospitals.

Resolutions on History of Medicine

Dr James Stevenson, Oklahoma, introduced the following resolutions, which were referred to the Reference Committee on Reports of Board of Trustees and Secretary

WHEREAS Medicine plays such an important part in the shaping of human destiny through the initiation and activation of spiritual, intellectual and social economic values and

WHEREAS A thorough comprehension of the past in the field of medicine would facilitate the solution of many problems now vexing the medical profession and

WHEREAS The chastening influence of the history of medicine on individual members of the profession and its influence on the eager young doctor not yet seasoned by experience nor fully aware of his debt to those who have gone on before and

WHEREAS A wide dissemination of these simple facts about the evolution of medicine and its remarkable accomplishments in the face of mounting demands through mechanistic developments would do much toward a restoration of faith in medicine as now practiced in America and

WHEREAS The present mounting interest in medical history affords the American Medical Association an unusual opportunity to assume leadership in this field therefore be it

Resolved That the Trustees of the American Medical Association consider the advisability of establishing a committee or a bureau or other agency which shall be committed to the task of discovering sources, and

the accumulation and preservation of medical historical data and possibly the occasional publication of historical studies of interest to the members of the American Medical Association and of value to the public and be it further

Resolved That such a committee or other agency be instructed to cooperate with medical schools in the planning of courses in medical history and with state and county associations interested in local medical history

Report of Reference Committee on Reports of Board of Trustees and Secretary

Dr H Russell Brown, Chairman, presented the following report, which was adopted

Resolution on History of Medicine Your committee has carefully considered and is in sympathy with the intent of this resolution. It believes, however, that the objectives can be best accomplished by the appointment of a special committee by the Board of Trustees to study this problem and render a report of its conclusions within one year

Resolution on Regulation of Nursing in Veterans' Hospitals

Dr James Stevenson, Oklahoma, introduced the following resolution, which was referred to the Reference Committee on Medical Education and Hospitals

WHEREAS In order to secure a higher grade of medical attention for their patients the Veterans Administration has entered into a system of cooperation and mutual aid with the various medical schools throughout the nation and

WHEREAS In connection with this arrangement a crisis has developed in the nursing situation. Many factors have contributed to the shortage of nurses but it is evident that in part the difference in the wage scale which is being paid by the Veterans Administration and that which is paid by the teaching hospitals has worked a hardship on the universities and their affiliated hospitals in that it has become almost impossible to secure adequate nursing personnel therefore be it

Resolved That the Faculty Board of the Medical School of the University of Oklahoma recommends that this situation be called to the attention of the American Medical Association through its Council on Medical Education and Hospitals and that all parties concerned working together reconcile these wage differences for nurses and thereby solve this trying problem in such a manner as may be helpful to and may avoid injury to the furtherance of the nursing profession

Report of Reference Committee on Medical Education and Hospitals

Dr Herbert B Wright, Chairman, presented the following report, which was adopted

Your committee considered the resolution introduced by Dr James Stevenson of the Oklahoma delegation to the effect that the attention of the American Medical Association be called to the wage scale which is being paid by the Veterans' Administration and that which is paid by the teaching hospitals arguing that it mitigates against civilian hospitals obtaining sufficient nursing personnel. Your committee feels that this is a matter which should be referred to the Board of Trustees

Resolution on Amendment of Federal Narcotic Act to Provide for Dispensing of Codeine Mixtures and Compounds on Oral Prescription

Dr Raymond M McKeown, Oregon, introduced the following resolution, which was referred to the Reference Committee on Hygiene and Public Health

WHEREAS Mixtures and compounds containing codeine, dihydrocodeine, or dihydrohydroxycodone in combination with other nonnarcotic medicinal ingredients are widely used for the relief of cough and mild pain and

WHEREAS Many patients need these mixtures and compounds on short notice after office hours and

WHEREAS Only mixtures and compounds containing not more than one grain of codeine per fluid or avoirdupois ounce are now included among exempt preparations under the Federal Narcotic Act and may therefore be dispensed by the pharmacist without a prescription and

WHEREAS For effective medication mixtures and compounds containing codeine, dihydrocodeine, or dihydrohydroxycodone in combination with other nonnarcotic medicinal ingredients often require these drugs in amounts greater than one grain per ounce and

WHEREAS The relatively limited possibility of inducing or sustaining narcotic addiction by the use of these mixtures and compounds is more than offset by the great inconvenience to patients, pharmacists and physicians caused by the provision of the Federal Narcotic Act which prohibits the pharmacist from dispensing these mixtures and compounds except upon a written prescription therefore be it

Resolved That the House of Delegates authorize and direct the Board of Trustees and the Committee on Legislation to seek to obtain the amendment of the Federal Narcotic Act to provide that all mixtures and compounds containing codeine, dihydrocodeine, or dihydrohydroxycodone in combination with other nonnarcotic ingredients may be dispensed upon an oral including telephonic prescription which must be reduced to writing by the pharmacist and to cooperate with the American Pharmaceutical Association and the National Association of Retail Druggists in pursuing this objective

Report of Reference Committee on Hygiene and Public Health

Dr Everett P Coleman, Chairman, presented the following report, which was adopted

Your reference committee considered a resolution presented by Dr Raymond M McKeown of the Oregon State Medical Society, concerning amendment of the Federal Narcotic Act to provide for dispensing of codeine mixtures and compounds on oral prescription. Your committee realizes that many corrections should be made in the field of narcotic prescription and that many needless hardships are forced on patients, pharmacists and physicians. However, it feels that the resolution is not sufficiently inclusive and recommends that it be not adopted in its present form, but that the entire subject matter be referred to the Board of Trustees for subsequent referral to the proper committee for more complete study

Resolution on Health and Welfare Funds

Dr James Z Appel, Pennsylvania, introduced the following resolution, which was referred to the Reference Committee on Insurance and Medical Service

WHEREAS Certain developments in the administration of the program of the United Mine Workers Welfare and Retirement Fund have taken place in Pennsylvania that seem to threaten the private practice of medicine and may result in the deterioration of the quality of medical services in these areas and

WHEREAS The Board of Trustees of the Medical Society of the State of Pennsylvania has instructed its delegates to present this matter to the House of Delegates of the American Medical Association for its most urgent consideration be it

Resolved That the American Medical Association through its proper committees immediately study this problem in order to ascertain the true objectives and methods of operation of all health and welfare funds

Report of Reference Committee on Insurance and Medical Service

Dr Gerald V Caughlan, Chairman, submitted the following report, which was adopted

A resolution introduced by the Pennsylvania delegation relative to health and welfare funds being used to set up clinics and hospitals, was studied by your reference committee. This matter deals with cooperative medicine, and your committee recommends that it be referred to the Council on Medical Service

Resolutions on Gamma Globulin

Dr Robert B Homan Jr, Texas, introduced the following resolutions, which were referred to the Reference Committee on Hygiene and Public Health

WHEREAS Gamma globulin, a derivative of whole blood, is now being used for the prevention or attenuation of measles, infectious hepatitis and poliomyelitis and

WHEREAS The Office of Defense Mobilization is "the allocating authority for gamma globulin" which blood product is to be released or allocated through the state or territorial health departments to local county health departments or county health officers according to a formula based on previous and present incidence of measles, infectious hepatitis and poliomyelitis in each community and

WHEREAS Gamma globulin under this program will be distributed free, without charge regardless of the ability of the exposed person or his family to pay although the family doctor may charge "for his services" in administering this product, and

WHEREAS In order to implement this program the National Foundation for Infantile Paralysis has contracted to purchase all gamma globulin available from commercial sources at a cost of \$11 000 000 from funds donated by the public to this Foundation through the March of Dimes and other fund raising methods and

WHEREAS The cost of the gamma globulin to the individual user would in most instances not be prohibitive and

WHEREAS The fund donated by the people of this country to the Foundation to combat polio and to care for the afflicted is greatly needed for research and for the treatment of individual cases the cost of which would be prohibitive to the individual in many instances and

WHEREAS Such free dispensing of prophylactic products or medical care both preventive and curative regardless of ability to pay is contrary to the American system now therefore be it

Resolved That the House of Delegates of the American Medical Association favor and sponsor any move to require that gamma globulin so distributed among the various communities be purchased by the individuals receiving it when the cost is not prohibitive to the individual or his family in order that the funds in the treasury of the National Foundation for Infantile Paralysis may be used for much needed research and for the care of afflicted individuals such research certainly and such care most often being prohibitive in cost to the individual and his family and be it further

Resolved That funds so collected be returned to the treasury of the National Foundation

Report of Reference Committee on Hygiene and Public Health

Dr Everett P Coleman, Chairman, submitted the following report, which was adopted

Your Reference Committee on Hygiene and Public Health considered the resolution submitted by Dr Robert B Homan Jr, of Texas, on Gamma Globulin Your committee recommends that the House of Delegates of the American Medical Association favor any move to encourage individuals receiving gamma globulin to contribute to the cost of the material used, so that the National Foundation for Infantile Paralysis and the American Red Cross may replace, in part, funds used for this purpose and that such funds be available for much needed research and for the care of afflicted individuals

Resolution on Revision of Principles of Medical Ethics

Dr Russell V Lee, Section on Military Medicine, introduced the following resolution, which was referred to the Reference Committee on Miscellaneous Business

Resolved To substitute for Chapter I, Sections 1 and 2 of the Principles of Medical Ethics the following section 1

We physicians affiliated with the American Medical Association recognizing that in common with physicians of the entire world we are only trustees for the benefit of all mankind of the great treasure of medical knowledge and skill accumulated throughout the ages accept with the trusteeship certain obligations as follows (1) To make these benefits accessible to all who need them insofar as facilities permit, (2) to exercise these skills for the benefit of all humanity, (3) to strive constantly to improve ourselves in knowledge and skill (4) to teach our art to all of good character who have the desire and capacity to learn insofar as proper means can be developed (5) to increase by research and other means this share of knowledge and to make our discoveries freely available to all physicians, (6) to resist all attempts to misuse our services for political purposes while freely discharging all our obligations as citizens (7) to devote our skills to the alleviation of suffering and the deferment of death and never for any reason to the termination of human life (8) to aid and support our medical colleagues in all countries in the attainment of proper humanitarian objectives (9) to maintain in our relationships with our patients our colleagues and the public the strictest standard of personal honor and (10) to dedicate our knowledge and skills and our lives to the alleviation of suffering the prolongation of life and the enrichment of living for all men without thought of any personal advantage or gain

Report of Reference Committee on Miscellaneous Business

Dr Walter P Anderton, Chairman, presented the following report, which was adopted

With respect to the resolution by Dr Russel V Lee of the Section on Military Medicine suggesting revision of the Principles of Medical Ethics, your committee recommends referral of this resolution to the Council on Constitution and Bylaws for its consideration in the forthcoming revision of the Principles of Medical Ethics

Resolution on Disapproval of Executive Order of President of the United States

Dr Hugh H Hussey, District of Columbia, introduced the following resolution, which was referred to the Reference Committee on Legislation and Public Relations

WHEREAS President Eisenhower's Executive Order 10450 dated April, 29 1953 dealing with security requirements for government employees stated that among the threats to Government security are the following: An adjudication of insanity or treatment of serious mental or neurological disorders without satisfactory evidence of cure (Sec 8 (a) (1) (iv) and

WHEREAS This Order has singled out two groups of illnesses from the total mass of human ills each of which may have psychological complications and

WHEREAS It is recognized that employees with severe mental illness as well as those with other illnesses may in some instances constitute a threat to government security and

WHEREAS Well-established personnel policies now provide leave of absence in the event of serious illness and

WHEREAS The extent of illness can in each instance be determined only by a qualified doctor of medicine and

WHEREAS The Order would seriously discourage employees from seeking medical treatment thereby destroying medicine's most effective tools, namely early diagnosis and treatment and

WHEREAS The Order indicates a need for a critical survey of the relation of all illnesses among government employees to the total subject of security therefore be it

Resolved That the House of Delegates of the American Medical Association instruct the Association's Board of Trustees to recommend to the President of the United States (1) that he rescind Section 8 (a) (1) (iv) on the ground that it is unscientific unnecessary and damaging and (2) that he direct that the subject of illness among government employees as related to security be further reviewed

Report of Reference Committee on Legislation and Public Relations

Your committee has studied with interest the resolution introduced by Dr Hussey of Washington, D C, concerning the relation of all illnesses among government employees to the total subject of security This matter is one which requires careful consideration and study It is recommended that this matter be brought to the attention of the Special Medical Assistant to the Secretary of Health, Education, and Welfare, who is soon to be appointed

Message from San Francisco

Dr George F Lull, Secretary, read the following telegram from the President of the San Francisco Medical Society, Dr Edwin J Morrissey

The San Francisco Medical Society is delighted that the American Medical Association will have its next meeting in San Francisco We will do everything in our power to see that the 1954 convention is the usual success

Supplementary Report of Reference Committee on Credentials

Dr William Weston, Chairman, reported that 182 out of 185 delegates had registered

Statement Re Action of Board of Trustees in Calling Special Session of House of Delegates

Dr Thurman B Givan, New York, presented the following statement, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary

At a meeting on May 31 1953 of the members of the House of Delegates of the American Medical Association representing New York State, it was the unanimous opinion that complete accord be granted by said delegates with the action of the Board of Trustees of the American Medical Association in calling together the House of Delegates of the American Medical Association in Washington D C. on March 14 1953

Report of Reference Committee on Reports of Board of Trustees and Secretary

Dr H Russell Brown, Chairman, presented the following report, which was adopted

Your committee has studied carefully the statement introduced by Dr Thurman B Givan of New York on the subject of the Special Session of the House of Delegates on March 14, 1953, and wishes to offer the following report It is the opinion

of your committee that the Board of Trustees acted in the best interest of our profession in calling the Special Session of the House of Delegates on March 14, 1953

Resolutions on Membership in American Medical Association Sections

Dr R J Azzari, New York, introduced for Dr Thomas M d'Angelo, New York, the following resolutions, which were referred to the Reference Committee on Amendments to the Constitution and Bylaws

WHEREAS The American Medical Association's several scientific sections constitute in most instances the only representative unrestricted nation wide organization in their respective specialties, and

WHEREAS Membership in these sections is presently determined by members indicating their specialty at the time of registration for the annual meeting and

WHEREAS This system makes for a fluctuating membership depending on attendance at the annual meetings and

WHEREAS Certain International federations of specialty societies (like the International Congress of Ophthalmology) maintain that it is difficult to recognize the sections of the American Medical Association as representative organizations because of the indefiniteness of their membership therefore be it

Resolved That the method of enrolling as members of the several sections be altered so that a member will indicate his specialty membership preference at the time of paying his American Medical Association dues instead of being required as at present to be present at the annual meeting and be it further

Resolved That the Secretary of the American Medical Association cause to be prepared rosters showing the names of those who have indicated their desire to become members of the several sections and these lists so prepared shall constitute the membership rolls of the several sections so long as these members remain in good standing

Report of Reference Committee on Amendments to the Constitution and Bylaws

Dr John W Green, Chairman, presented the following report, which was adopted

Resolution on Membership in American Medical Association Sections This resolution was considered by your reference committee in conference with the Secretary of the Association, and your committee approves this resolution and recommends its adoption

Resolutions on Annual Medical Progress Day

Dr R J Azzari, New York, introduced the following resolutions, which were referred to the Reference Committee on Hygiene and Public Health

WHEREAS The progress and achievements of medicine are momentous and continue to advance at a most encouraging and gratifying rate and

WHEREAS Positive and accurate information concerning this progress and greater recognition of it by the public are urgently needed and

WHEREAS Our national administration is cognizant and highly appreciative of these noteworthy and humanitarian advancements, now therefore be it

Resolved That the House of Delegates of the American Medical Association request the President of the United States of America to proclaim annually an appropriate day of the year to be known as Medical Progress Day and be it further

Resolved That suitable recognition of this occasion be promoted through all possible media for the information of the public concerning the aims ideals and achievements of modern medicine

Report of Reference Committee on Hygiene and Public Health

Dr Everett P Coleman, Chairman, submitted the following report, which was adopted

Resolutions on Annual Medical Progress Day Your committee approves this resolution in principle, but as it may, if successful, require time and the expenditure of funds on the part of state and county medical societies, your committee feels that without further information this recommendation might be unwise and that such a day might be combined with Hospital Day or with a Doctors Day which has been inaugurated in some parts of the country by the Woman's Auxiliary On this account, your committee feels it may be better to refer this resolution to the Board of Trustees for study

Resolution on Clarification of Section 5 of Principles of Medical Ethics

Dr Millard D Hill, North Carolina, introduced the following resolution, which was referred to the Reference Committee on Amendments to the Constitution and Bylaws

Resolved That the Executive Council of the Medical Society of the State of North Carolina in meeting February 15 1953 at Raleigh North Carolina recommends to the American Medical Association that it clarify Section 5 Chapter III of the American Medical Association Principles of Medical Ethics related to the subject of fee splitting and that the provisions of said section be elaborated

Report of Reference Committee on Amendments to the Constitution and Bylaws

Dr John W Green, Chairman, submitted the following report, which was adopted

Resolution on Clarification of Section 5 of Principles of Medical Ethics Your committee believes that this refers to Section 5, Article 6, Chapter III, of the Principles of Medical Ethics Your committee feels that this section covers the situation, but it also feels that it should be referred to the Board of Trustees for further study, because the subject is too broad to settle at this time

Resolution on Proposed Change in Make Up of Nominating Committees of Scientific Sections

Dr Edward L Compere, Section on Orthopedic Surgery, introduced the following resolution, which was referred to the Reference Committee on Amendments to the Constitution and Bylaws

WHEREAS Section 7 of Chapter VII of the Bylaws specifies that the executive committee of each section except for the Section on Miscellaneous Topics shall act as the nominating committee of the Section and

WHEREAS This nominating committee so constituted includes the secretary and the section delegate and

WHEREAS It has been found to be advisable by most of the sections to elect both the secretary and the delegate for several years and

WHEREAS The secretary and the delegate may be embarrassed to be in the position of appearing to help to renominate themselves year after year therefore be it

Resolved That the last sentence of Section 7 of Chapter VII be changed to read as follows "The nominating committee of the section shall consist of the chairman and the last two previous chairmen except for the Section on Miscellaneous Topics."

Report of Reference Committee on Amendments to the Constitution and Bylaws

Dr John W Green, Chairman, presented the following report, which was adopted by more than the two thirds vote that the Vice Speaker declared was necessary to effect the indicated change in the Bylaws

Resolution on Proposed Change in Make-Up of Nominating Committees of Scientific Sections Your reference committee approves this resolution and recommends its adoption

Resolution on Prescriptions in Code

Dr R J Azzari, New York introduced the following resolution, which was referred to the Reference Committee on Hygiene and Public Health

WHEREAS It has come to the attention of the American Medical Association that certain physicians have entered into arrangements with pharmacists in the dispensing of prescriptions in code and

WHEREAS This procedure prevents a patient from going to the pharmacist of his choice and

WHEREAS Such procedure lends itself to the overcharging for prescriptions and

WHEREAS The dispensing of secret remedies is contrary to the Principles of Medical Ethics of the American Medical Association and contrary to the avowed traditions and principles of the medical profession therefore be it

Resolved By the House of Delegates of the American Medical Association at the 102d Annual Session that all physicians who engage in such practices are guilty of unethical practices and should be disciplined by their local societies

Report of Reference Committee on Hygiene and Public Health

Dr Everett P Coleman, Chairman, presented the following report, which was adopted

Resolution on Prescriptions in Code The use of codes in prescriptions is in use in some large institutions as a matter of convenience but the codes are not secret and are available to druggists if the patient desires to get the prescription filled elsewhere. This resolution is not meant to apply to institutional practice. Your reference committee recommends the adoption of this resolution.

Resolution in Appreciation of Dr. Louis H. Bauer

Dr. William A. Hyland, for the Michigan delegation, introduced the following resolution, which was adopted by a unanimous, rising vote.

Resolved: As its distinguished President Dr. Louis H. Bauer concludes his term of office the American Medical Association expresses to him the deep appreciation of its officers and members for his inspired leadership, devoted service, and wise counsel. They extend to him as well their great thanks the best wishes for many more years of satisfaction which must come to him as a result of his unselfish and generous contributions in behalf of the medical profession.

Address of Commander of American Legion, Mr. Louis K. Gough

Dr. Louis H. Bauer, Past President, introduced Mr. Louis K. Gough, Commander of the American Legion, who addressed the House as follows:

Mr. President, Mr. Speaker, Distinguished Members of the House of Delegates and Distinguished Guests: I am informed that one of the questions before you is how to transact so much business in so little time, and, as my contribution, I am going to keep my remarks brief. As National Commander of the American Legion, I am honored and privileged this morning to represent the four million members of the American Legion and the Auxiliary before the leaders of the American Medical Association. There are many delegates among you and many more of your colleagues throughout the country who are also American Legionnaires. How many, I do not know. I am sincerely confident, however, that if this total were higher, it would be to the mutual benefit of both of our great organizations.

One of the goals common to both organizations was given eloquent expression by your immediate Past President, Dr. Bauer, here in New York at the time of the 34th National Convention of the American Legion last summer. Dr. Bauer was kind enough on that occasion to point out that, years before you decided to launch upon your own organized campaign against socialized medicine, the American Legion was already on record in opposition to any form of Government regimentation in the field of medicine. Now we understand that, so far as such commitments can be made, the present Administration has given your Association the assurance that there will be no support for a program of socialized medicine. As a veteran group high in the tradition of actions expressing our belief that the free institutions of America are worth fighting for, we are glad that the record shows our position in this matter arrived at early in the 1940's.

There is a second area in which we believe your interest should be as great as ours. That is the primary purpose for which the American Legion was organized, namely, veterans' rehabilitation. We have maintained, and the people through the Congress have acknowledged, that there is a clear obligation on the nation to care adequately for those citizens from whom war service has taken the ability to care for themselves adequately and properly.

The current actions of your Association give strong supporting evidence to our belief that the man who is called, or who volunteers for service, thereby has created a sense of obligation—of debt—owed by the people, through their government, to him who serves. Recognizing the sacrifice of the doctor who serves—and serves again—you have supported legislative efforts to gain special financial recognition for the doctor in uniform.

You know, of course, that the American Legion recognizes the part of the American Medical Association has played in bringing inspired medicine to the veterans of our wars. Here again the American doctor recognized the actions of the American Legion, in 1940 and 1941, in calling for a correction of the undistinguished medicine practiced in the Veterans

Administration prior to 1940. Since 1946 private medicine has performed the tasks that only its members could accomplish in supporting the improvements called for by the American Legion in Milwaukee in 1941. These joint efforts represented clear gain for everybody involved. The veteran, who is our primary concern, the profession, which is close to your hearts, and the taxpayer, who makes the service possible. As doctors, I am sure you agree that good medicine these days costs money and bad medicine is no bargain at any price. We believe that you are just as interested as we are in preserving and improving the high caliber of Veterans Administration care. We believe that you take exception as we do to any attempt, however well intentioned, to destroy the superior standards which have been established with your help for those who are deserving of help.

The American Legion is carefully watching the deliberations and action of Congress with reference to adequacy of funds for the Veterans Administration to carry out the programs for veterans assigned to it by Congress. Returning veterans' medicine to the political grabbag in the long run would solve nothing and save nothing. The veteran with entitlement who needs hospital care will continue to need it whether the Veterans Administration facilities are available to him or not. So far as I know, no one has suggested just where and how and by whom the neuropsychiatric, the tubercular, and the chronic cases are to be treated outside the veterans hospitals. No one knows better than you the overcrowded conditions of state and municipal institutions. To turn the deserving veteran out of Veterans Administration facilities would solve nothing and only create a new social problem.

There are those who want a change in the law authorizing hospital care of the non service-connected who are legally entitled on basis of inability to pay and availability of beds. We do not! We insist that only a selfish interest impels those who seek to abridge the basis for providing this medical care so positively established by the existing statute.

The American Legion, like the American Medical Association, is made up of citizens who pay taxes and who would like to see the federal budget balanced and the tax load lightened. We are for economy and efficiency in the government—most of all in the Veterans Administration, where those factors mean improved service for the deserving veteran. I think we have proved that over the years, and specifically during the current year by preparing and submitting to the Veterans Administration and the Congress seven separate recommendations for administrative savings in the agency that would save millions. I have discussed these proposed economy measures with the President, his reorganization staff, and several committees of the Congress, and have submitted them in writing to every member of Congress.

Much of the criticism being circulated about the program is based on erroneous or incomplete information directed at alleged abuses of the limitations on entitlement. We have found that charges of this character are usually based on erroneous or incomplete knowledge of the facts. It is a case of bad information running interference for good intentions. Accordingly, our National Convention of 1952 authorized the establishment of a special liaison committee to work with similar groups in the American Medical Association, the hospital and dental associations, and government agencies, to see if we could not come up with a set of agreed upon facts, acceptable to all concerned, as a means of common approach to the problem. The American Legion was privileged to arrange for the first of these fact-finding conferences last March in Washington. We had been led to believe that this was but the first of a series of meetings in which there could be a joint appraisal of the facts. We recognized that however accurate such a set of facts might be, their value was limited to the extent of their acceptance by all concerned—the public, the Congress, the doctor, the veteran, and the Veterans Administration.

Meanwhile, in line with the conferees' thinking, we are proceeding with our own surveys of certain aspects of the Veterans Administration operation. So far as our surveys have been developed, we yesterday submitted them for your consideration. It is our belief that such surveys, the only such information available, indicate a high observance of the rules

for eligibility for treatment under Veterans Administration authority. They are factual and not stacked. We would be delighted to have the American Medical Association participate in the work of preparing such surveys.

The American Legion field staff of rehabilitation experts to date has looked into the conditions surrounding the admission of patients to ten different Veterans Administration hospitals. Bedside checks of those actually in the hospital as non service-connected cases show that the great majority of these men had spent their savings, had lost the capacity to earn a living, and were incapable of paying for private hospitalization. Indeed, a goodly percentage of them had had their Veterans Administration application forms signed by their private physicians. Our surveys, as well as Veterans Administration surveys, indicate the number of short term non service-connected is less than 10 per cent, and of all patients in Veterans Administration hospitals it is indicated there is a negligible percentage whose entitlement under the law may be questioned. And it has not been clearly demonstrated that all of the negligible percentage are guilty of abusing this veterans privilege. We have taken aggressive steps to eliminate even a small percentage of abuse of entitlement which keeps needed beds from deserving veterans, and we will continue to do so. I will not take your time to enumerate what has been done and will be done along this line. Practicing physicians can be of great help in this Legion effort.

The American Legion has maintained the closest possible contact with the veterans medical and hospital system for 35 years. We have developed experience in this field, but we do not know all the answers. That is the reason we have been so anxious to get these facts, to analyze them properly, and to secure their acceptance.

Through such a joint effort, we believe you could bring your resources to the establishment of a Veterans Administration medical and hospital program operated as a stabilized effort, in an area of respect, confidence, and trust. In short, we seek a return to the kind of thinking and action which first inspired our nation to provide for the physical and mental rehabilitation of the veteran who is sick, broke, and has no place other than the Veterans Administration to go. We believe the answer to our mutual problems lies in developing a groundwork of factual information which is not only accurate but known and acceptable to all concerned, and in properly applying those facts to the problems of veterans' rehabilitation.

It has been an honor to appear before you.

Introduction of 26 Millionth Subscriber to Blue Shield Plans

The privilege of the floor was granted to Dr. Robert L. Novy, Michigan, who introduced to the *House of Delegates* Mr. William P. Marcum, Louisville, Ky., as the 26 millionth subscriber to Blue Shield Plans. Mr. Marcum expressed his thanks for the recognition accorded him, and his appreciation of the opportunity to become enrolled in Blue Shield.

Invitations for 1956 Annual Meeting from New York and Chicago

Dr. John J. Masterson, New York, presented an invitation on behalf of the Medical Society of the State of New York to the American Medical Association to return to New York for its annual meeting in 1956. The invitation was predicated on the possibility that New York will have its new coliseum completed in time, and the House of Delegates was petitioned to delay its decision on the 1956 place of meeting and delegate authority to the Board of Trustees, since by Fall of this year it should be known definitely whether or not the new coliseum will be completed in time.

Dr. Harlan English, Illinois, extended for the Illinois State Medical Society and the Chicago Medical Society an invitation to the American Medical Association to hold its annual meet-

ing in Chicago in 1956, anticipating that by that time there would be a new convention hall with adequate facilities.

The Speaker announced that both invitations would be referred to the Board of Trustees for recommendation.

Supplementary Report of Board of Trustees on Place of 1956 Annual Meeting

Dr. Dwight H. Murray, Chairman, presented the following supplementary report, and the Board of Trustees was granted the authority therein requested.

Three invitations have been received by the Board of Trustees for the 1956 Annual Meeting of the Association. Two of the invitations have just been received. The other is from a city where it is believed the accommodations for exhibits are inadequate. The Board, therefore, requests authority from the House of Delegates to select the meeting place for the 1956 Annual Meeting at some time in the near future and to report back to the House in December, 1953.

Address of Past President Frank H. Lahey on National Fund for Medical Education

The Speaker requested the privilege of the floor, which was granted, for Dr. Frank H. Lahey, Past President of the Association, who addressed the House as follows:

Mr. Speaker, Members of the House: I am compelled to come here and speak to you on this subject because I want to bring to those of you who are interested in the future of medical education an encouragement that to me is very stimulating. I have been a trustee of the National Fund for Medical Education now for two or three years. I have become interested in it. I have come to know the men behind it. I have traveled over the country with it, and I know enough about it and what it is doing so that I feel able to bring you some information concerning what is going on in it, what the future offers for it, and what the possibilities in the way of aiding the yearly deficit of medical schools are.

First of all, I must be extremely careful that you do not think I am interjecting myself into your program of contributions from doctors. That should and will remain in your hands, but my interest is to be an individual, if you please, who perhaps links your efforts with the efforts of the National Fund for Medical Education, dealing particularly with industry and industrialists. Why should I interest myself in this project? Mrs. Lahey says it is because I don't know any better, but actually it is possible, it seems to me, to do something for medical education in this capacity which will be helpful. Dr. Henderson and his group handle the contributions from the medical profession, which have been tremendously encouraging to present to industry. But let me at least be one of the professional group who is in contact with those officers of the National Fund for Medical Education who can go out with them and present to industry our viewpoints and our knowledge of what the actual situation is.

You have, as I am sure you all know, in the three previous years, upped your contributions in one form or another from around half a million to around 750 thousand dollars. I have Jerry Ade here who lives with this problem and represents the office, and he tells me that the contributions are now in the neighborhood this year of a million and a half. If you include in your contributions those to the medical schools of which you are graduates, this now runs in the neighborhood of 3 million dollars. This, I believe, is an answer to any questions which we may meet as we travel over the country—why don't the doctors do it themselves? Actually the doctors have outdone industry. I don't believe in the long run they will, but I would like perhaps to give you some information which shows what industry is really doing, and I would like to pay tribute to those men in industry who have participated in this. I refer to such men as President Hoover, President Hoover's willingness to take part in this, to stay up nights and talk to groups, has been tremendously stimulating to me. Sloan Colt, the

president of one of the large banks in this city, has been traveling the country. There is Colby Chester, Chairman of the Board of General Foods, who has shown a deep interest in traveling all over the country addressing organizations. He has used all of his contacts with the National Association of Manufacturers, of which he is a member, and I think a past president, to encourage their interest in this problem.

We are making headway in interesting industry in the roughly ten million dollars a year deficit the medical schools run. I should like to say to you also that it won't be long before we shall have more accurate figures as to what the real deficit is, because we are now in the process of trying to accumulate that information. The committees that have been working on this have found that industry knows little about what this project is. In meetings in Denver, Philadelphia, Chicago, and various other places, I find that industry has a very cloudy idea of what this project is. They satisfy themselves with the idea that they contribute to their local hospitals and their local research problems, but they are not aware that it is the purpose of this organization to inform them that this project is of deeper significance than the maintenance of local hospitals, and we would not want to hurt them or the Red Cross. Without the production of doctors, without the free enterprise in the training of medical students, the Heart Fund, Red Cross, Polio, local hospitals, all, are in serious danger of state control, against which you have worked so successfully.

We recognize that we have a good Administration, but we are not sure what the coming administrations may be. We know also that once we let this go and it gets into the hands of government, it is very likely that we will never recover it, because such has been the history of all projects which have gone into the hands of government. In addition to that, you get into the position of letting government do it if they will, and that is an important psychological factor. When we went to Denver, as we did, we went away all convinced that these industrialists became aware of what the real situation is, that they became interested in it and enthusiastic in developing committees in their communities. They, I believe, will be able to provide more and more each year.

It will be of interest, from these figures with which Mr. Ade has provided me, to note that there is an increase over 1952 for the first five months of this year, that the amount of gifts is 64 per cent ahead of last year, and that the number of gifts is 175 per cent ahead of last year. The renewal rate last year was 73 per cent, and this year it is practically 100 per cent. The number of gifts is more in the first five months by 340 this year than was available in the whole of last year.

I want to give you just some idea of what these men do so altruistically. Juan Trippe, for instance, provides this group with a private plane from Pan American with two pilots that transport them over the country—New York City, Chicago, Denver, Des Moines, Detroit, St. Louis, Cleveland, Pittsburgh, Philadelphia, and New York City again, that is where they went last year. These committees are set up with chairmen for groups, such as furniture, plumbing, steel, brewers, and so on. It is extremely encouraging to me to see how practically and how well this project has been organized. We find that television and radio stations throughout the country are cooperating, and that literally thousands of people are being informed on this subject. There has been front page publicity in the newspapers, there have been all kinds of radio communications and programs. Another impressive thing has been the willingness of President Eisenhower to commit himself, over his own signature, in a letter to the effect that this project must go forward.

I have felt that the Clinic should make a donation to this fund, and it is so close to my heart that I told Jerry Ade this morning that I didn't want him to feel we had lost interest, but our contribution should be, we believe, as yours should be, through medicine, and we want you to know that a real effort and a sound one is being organized to get business to participate.

Colby Chester has said something to business which is so true, and it will come to be effective, and that is that business has been in jail over the past years, and he has said to business, "You must realize that you must do more than give away five-eighths of one per cent of the 5 per cent that you are permitted to give, and that this is one of the gifts that will pay you in industry a very high reward." They are becoming more and more conscious of it, and we feel that if you will go on and set the example that you have in the way of contributions for this project, we can encourage the businessmen to do as much and preserve medicine from that fate which none of us wants to see come about, and that is government dominance.

Thank you very much for the opportunity of presenting this subject to you.

Resolution on Expression of Appreciation to Physicians of Korea

Dr. Robert L. Novy, Michigan, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations.

WHEREAS Our valiant allies the people of Korea have suffered incalculably since the invasion of the Republic of Korea by the Communist North Korean People's Republic, and

WHEREAS the individual physicians of the Korean Medical Association a member of the World Medical Association have shown great courage and personal sacrifice against almost insurmountable odds in meeting the medical needs of their people, therefore be it

Resolved That the House of Delegates of the American Medical Association in session in New York on June 3, 1953 express to the physicians of Korea and the Korean Medical Association our deep and sincere appreciation and admiration for their personal courage and devotion to their nation and their fulfillment of the highest traditions of the medical profession and our firm intention to aid our colleagues, the physicians of Korea both in substance and in spirit.

Report of Reference Committee on Reports of Board of Trustees and Secretary

Dr. George S. Klump, Chairman, submitted the following report, which was adopted.

The resolution introduced by Dr. Robert L. Novy expressing appreciation of the American Medical Association to physicians of Korea is heartily endorsed by your committee. It is suggested that the sentiments expressed might well be transmitted through Ambassador Yang, who is a Doctor of Medicine.

Resolutions on Dr. Donald G. Anderson

Dr. Herbert B. Wright, Ohio, introduced the following resolutions, which were adopted by a unanimous, rising vote.

WHEREAS Dr. Ronald G. Anderson is terminating his position as Secretary of the Council on Medical Education and Hospitals to assume the office of Dean of the Medical School of the University of Rochester New York, and

WHEREAS For more than seven years Dr. Anderson has efficiently and effectively carried out the duties of his office of Secretary to the Council, and

WHEREAS He has set an example by his integrity, capacity, and efficiency and has won the regard of this House, therefore be it

Resolved That this House by adopting these resolutions hereby express its sense of loss of the services of an able man and be it further

Resolved That this House herewith express its sincere best wishes for every success for Dr. Anderson in his new endeavor and be it further

Resolved That after being spread on the minutes of this the annual session of the House of Delegates of the American Medical Association, suitable copies of it be made and forwarded to Dr. Anderson and to Dr. DeKiewit, President of the University of Rochester.

Resolution on Crippled Children's Programs

Dr. Cleon A. Nafe, Indiana, introduced the following resolution, which was referred to the Reference Committee on Hygiene and Public Health.

WHEREAS Section 200.9 of Part 12-4 of Regulations for Maternal and Child Health and Crippled Children's Programs, entitled Crippled Children's Program, Diagnostic Services states as follows: State

Plans for Crippled Children's Services shall provide that the diagnostic services under the plan will be made available within the area served by each diagnostic center to any child (a) without charge (b) without restriction or requirement as to the economic status of such child's family or relatives or their legal residence and (c) without any requirement for the referral of such child by any individual or agency', therefore be it

Resolved That the Board of Trustees work through whatever channels may be necessary to eliminate this section of the Regulations the same being a socialistic regulation

Report of Reference Committee on Hygiene and Public Health

Dr Everett P Coleman, Chairman, submitted the following report, which was adopted

Resolution on Crippled Children's Programs This resolution is required because of the fact that bureaucratic regulations from the Children's Bureau require that no Means test be used and that a state which does not submit to these requirements can have no funds allocated to it Your committee recommends the adoption of this resolution

Resolution on Remarks of Commander of American Legion

Dr Richard L. Meiling, Ohio, introduced the following resolution, which was referred to the Reference Committee on Legislation and Public Relations

WHEREAS Mr Gough stated Recognizing the sacrifice of the doctor who serves—and serves again—you have supported legislative efforts to gain special financial recognition for the doctor in uniform is not correct in fact nor in its implication as to the medical profession's motives or to the motives of the physicians in uniform versus the so-called 'benefits' for veterans in general and

WHEREAS The history of legislative action with reference to the incentive or equalization pay for physicians dentists and veterinarians of the U S Public Health Service and the Armed Forces was proposed in 1947 to aid in the procurement of health professional officers for the regular corps—to wit that physicians and dentists in federal service who paid from personal funds for both their undergraduate and postgraduate education there be equalized the benefits provided the regulars of the line who received their education at West Point or Annapolis at the expense of the government therefore be it

Resolved That the House of Delegates now in session protest the implied slur on the patriotism and motives of physicians serving in the uniform of the Armed Forces and the U S Public Health Service as implied by Mr Gough and that the Editor of The Journal of the American Medical Association make public the true facts concerning equalization pay for physicians dentists and veterinarians serving in the Armed Forces and the U S Public Health Service

Report of Reference Committee on Legislation and Public Relations

Dr George S Klump, Chairman, presented the following report, which, after discussion, was adopted

The resolution introduced by Dr Richard L. Meiling has been withdrawn after proper consultation with the sponsors and with their consent Your reference committee offers the following substitute resolution

Resolved That the Editor of The Journal of the American Medical Association make public the true facts concerning equalization pay for physicians dentists and veterinarians serving in the Armed Forces and the U S Public Health Service

Gift of Woman's Auxiliary to American Medical Education Foundation

Dr Elmer L. Henderson, Past President, announced that the President of the Woman's Auxiliary, Mrs. Ralph B. Tusden, had presented him with a check of \$10,000, for the American Medical Education Foundation, that this is the third year in succession that the Auxiliary has contributed this amount and that in addition a state committee of the Auxiliary has raised \$21,500 which has been turned over to the Foundation

World Medical Association

As Chairman of the United States Committee of the World Medical Association, Dr Elmer L. Henderson announced that application blanks for membership in the United States Com-

mittee were available at this meeting of the House and appealed to the delegates to support the World Medical Association by becoming members of the United States Committee

Death of Dr Leshe S Kent

The Speaker read a telegram announcing the death of Dr Leshe S. Kent, Eugene, Ore., the first woman physician to serve as President of the Oregon State Medical Society and a former alternate delegate to the American Medical Association

The House rose in silent tribute to Dr Kent.

Expression of Appreciation

Dr Hollis E. Johnson, Chairman of the Reference Committee on Rules and Order of Business, presented the following motion, which was duly seconded and adopted

The Reference Committee on Rules and Order of Business wishes to move that we express our appreciation to Mr O'Brien of the G D Searle Company for a delightful social hour at luncheon and that we request Mr O'Brien to transmit our thanks and appreciation to Mr Searle who was not able to attend this meeting because of the marriage of his daughter in Chicago We thank him for this delightful occasion and we convey our best wishes to the bride and groom

Election of Officers

The following officers were elected

President Elect Dr Walter B. Martin Norfolk, Va
Vice President Dr Carl H. Gellenthien Valmora N. Mex.
Secretary Dr George F. Lull Chicago
Treasurer Dr J. J. Moore Chicago
Speaker House of Delegates Dr James R. Reuling Bayside N. Y.
Vice Speaker House of Delegates Dr E. Vincent Askey Los Angeles
Members Board of Trustees Dr Edwin S. Hamilton Kankakee Ill.
Dr Gunnar Gundersen La Crosse Wis. Dr Julian P. Price Florence S. C.

Drs Hamilton and Gundersen were elected to succeed themselves, and Dr Price was elected to fill the unexpired term of Dr Walter B. Martin

Member Judicial Council Dr George A. Woodhouse Pleasant Hill Ohio

Members Council on Scientific Assembly Dr Henry R. Viets Boston Dr Charles H. Philfer Chicago

Members Council on Medical Education and Hospitals Dr Victor Johnson Rochester Minn. Dr Leland S. McKittrick Boston

Members Council on Medical Service Dr Louis M. Orr II Orlando Fla. Dr Robert B. Homan Jr., El Paso Texas

Member Council on Constitution and By-Laws Dr Stanley H. Osborn Hartford Conn.

Election of Affiliate Members

On nomination by the Judicial Council

Dr Jon H. Rouch Oubangul-Charl French Equatorial Africa
Dr Bernarr B. Johnson Addis Ababa Ethiopia
Dr Edward M. Morgenstern Mexico City Mexico

On nomination by the Section on Experimental Medicine and Therapeutics

F. Royce Franzoni Arlington Va.
Kalman I. Perlman Chicago

Motions of Appreciation

Dr Hollis E. Johnson, Chairman of the Reference Committee on Rules and Order of Business, presented the following report and motions, which were adopted individually

Mr Speaker and Members of the House of Delegates of the American Medical Association Your Reference Committee on Rules and Order of Business, acting for the House of Delegates, wishes to make some brief motions expressing commendation and appreciation to the various Councils, Committees, persons and organizations whose untiring and unselfish

efforts have contributed so much toward making this, the 102d Annual Meeting of our Association, such a wonderful success¹

1 Your reference committee moves that a sincere vote of thanks and appreciation be extended to the Local Committee on Arrangements, under the able chairmanship of Dr J Stanley Kenney, for the very efficient plans of this gigantic meeting which have helped so much in the orderly and frictionless operation of its procedures

2 To the Subcommittee on Delegates' dinner under the chairmanship of Dr William B Rawls Mere words cannot do justice to the evening of wonderful entertainment afforded us by the New York doctors

3 To the Secretary's Office and staff, under the capable direction of Mrs Cascio, whose untiring efforts through long, weary hours have contributed so much to the success of this meeting,¹ and to the public relations bureau and staff of the headquarters office

4 To the management and all the staff of the Waldorf-Astoria Hotel for the excellent preparations made for the meeting of this House of Delegates and the other activities of our medical organization and for the efficient execution thereof

5 To the Convention Bureau of New York City and all the other hotels of this city that have helped in any way to make this meeting so successful

6 To the following television and radio networks for their excellent coverage of the activities of our Association CBS TV, NBC-TV, United Press Movie Tone TV, WABC-TV, All Star News and WOR-TV, and the following radio networks ABC, CBS, and NBC, and further to the various radio stations in New York City which made several broad casts of the activities of our Association daily, and to the newspapers of New York City for their excellent coverage of our activities

7 To Jean Hersholt for his sympathetic interpretation of The Family Doctor, to his company of players and the Chesebrough Manufacturing Company for making this production possible

8 To the various Councils and Reference Committees of this House of Delegates for their diligent studies of the many resolutions that passed through their hands

9 To the scientific sections for their excellent programs and to all the exhibitors, both scientific and commercial, for their valuable contributions to the success of this meeting

10 To the Doctors' Orchestral Society of New York for the program of music presented for the Presidential Inauguration

11 Last, but far from least, to the Speaker and Vice Speaker of the House of Delegates for their usual fair and judicious handling of the proceedings of the House.

Motion of Appreciation to Dr Elmer L Henderson

Dr Paul A Davis, Section on General Practice, moved that the House of Delegates express its appreciation for the wonderful work done by the Past President, Dr Elmer L Henderson, as Chairman of the American Medical Education Foundation

The motion was duly seconded and adopted by a rising vote

Introduction and Remarks of Mrs. Ivy Baker Priest, Treasurer of the United States

Dr George M Fister, Utah, received the privilege of the floor to introduce Mrs Ivy Baker Priest of Utah, Treasurer of the United States, who addressed the House as follows

¹ Mrs Bess McDonald Spies Miss Mary McGovern Miss Juellina Williams Mrs Mary DeStefano Miss Hazel Hopkins Miss Eleanor Sirio and Mrs Ida May Cascio were introduced and received the plaudits of the House

Mr Chairman and Distinguished Doctors I am delighted to be here I was greatly surprised to find myself designated for this position I am delighted to have it, very proud to have it, very proud to be part of this Administration I realize that this Administration has a very difficult role in the next four years, a role that it must meet fearlessly and courageously, because the job that must be done for the good of this country is not easy It is very difficult, and it will require patience, understanding, and support from the peoples of these United States everywhere It can't be done overnight, and very definitely it is going to require a great deal of courage, perseverance, understanding, and, above all, deliberation, for a sound basis upon which to build for the future You see, the course that must be followed is not popular, very unpopular, as a matter of fact, but for the good of this country it must be done And so I am very proud to be part of this Administration

As Treasurer of the United States, I have no policy making powers I can't say how the money shall be spent I just spend it according to the way I am directed by Congress and by the Treasury Department But I do know this, that a very real effort on the part of those who are making policy in this Administration will be put forth to see to it that we do present a program that will have a sound basis upon which this country can grow We may be hurt a little, we will be hurt a little I think we expect that. But far better to be hurt a little in an orderly readjustment to a sound base from which we can build than to have had a complete collapse which might very well have happened, and financial collapse would certainly have been chaotic, not only for this country but for the world

And so my few words would just be to help this Administration, and your forbearance, your understanding, your patience, and your forbearance, and I am sure that every effort will be put forth by those in charge during these next four years to do a job for America

Address of President Elect Walter B Martin

The newly elected President Elect, Dr Walter B Martin was brought to the platform, and addressed the House as follows

Mr Speaker, Members of the House of Delegates You have conferred on me a great honor You have placed on me an equally great responsibility I wish to express to you my deep appreciation for the confidence that you have shown in me by so doing After twenty years in the House of Delegates, on the Council on Medical Service and the Board of Trustees, it stirs my soul and lifts my heart to know that my friends and associates have that much regard for me I would be bold indeed in accepting this responsibility were I not moved by some sense of misgiving as to my ability to measure up to the high requirements of this great office You have been most fortunate in the caliber of men who have served you in the past in this position, and I hope that I can follow their leadership and bring to the American Medical Association the accomplishments in some measure that they have

I can give you one assurance, however, and that is a complete devotion to American medicine, its aims, its purposes, its ideals To accomplish these purposes, I know I can rely on you and all our associates here in bringing effective support to anything that I do I am persuaded that the policies laid down by this House have been sound policies, and that our cause is just, that in our labors here together we are working not for economic gains for ourselves, but to serve the cause of all the people, just as you as individual doctors serve your own patients for their best interests To the end that our purposes may be accomplished and our policies continued, I pledge to you the full measure of my strength, physically, bodily, and mentally I want to thank you individually and as the representative body of the American Medical Association for this great honor, and I accept the responsibility

The House adjourned sine die at 3 05 p m., Thursday, June 4

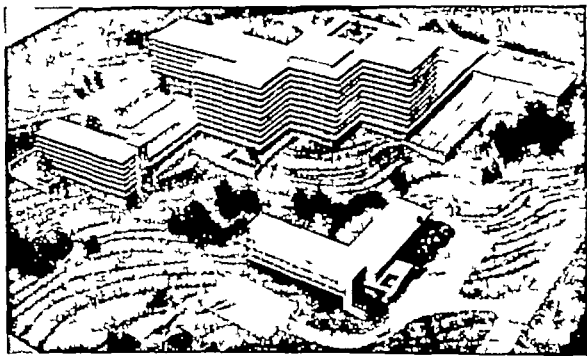
MEDICAL NEWS

ALABAMA

Medical Officer Needed—The headquarters of the Mobile Air Materiel Area, Brookley Air Force Base, is seeking a medical officer (male or female, with experience in occupational medicine) to serve as civilian chief of the civilian dispensary at an entrance salary of \$7,040 a year. This officer will be in charge of the industrial medical program for civilian employees, give emergency treatment to personnel injured on the reservation, prepare reports of examinations, determine type of work for which personnel are physically qualified, and exercise professional supervision over nurses, laboratory technicians, and clerical personnel. Applicants must have had at least one year of responsible professional experience. One year of an approved residency may be accepted for this one year of required experience, but the internship may not be included. Postgraduate experience as a teacher in this field in an approved school of medicine may be accepted toward meeting the experience requirements. Applicants should submit completed form 57 to Employment Unit, Building S 153, Brookley Air Force Base, Alabama. Application forms may be secured at the nearest post office or from Mr. W. N. Ballard, Chief, Civilian Personnel Branch, Brookley Air Force Base, Alabama.

ARKANSAS

University News—The Arkansas General Assembly recently took action that assures the completion of the University of Arkansas Medical Center in Little Rock at a total cost of about



Proposed University of Arkansas Medical Center

13 million dollars. The first unit in the center, a 450 bed teaching hospital and clinic, now under construction, is expected to be completed in the fall of 1954. The recent legislative action makes possible the construction and equipping of a building to house the school of medicine, the school of pharmacy, and a newly established collegiate school of nursing, as well as a women's dormitory to house students in the school of nursing and other women students. The entire medical center is expected to be ready for occupancy in 1955.

Personal—Dr. Leslie H. Wright, manager of the VA Hospital in Fayetteville, was recently elected chairman of the Fayetteville Community Chest.—Dr. Richard W. Miller, Fayetteville, has been appointed chief of staff of the Washington County Hospital, Fayetteville.—Dr. Jabez F. Jackson, Newport, was recently named president of the Newport Rotary Club.—Dr. Lorenzo D. Massey, Osceola, was recently named man of the year by the Chamber of Commerce and was presented with a desk set. Dr. Massey, who has practiced in

Osceola for 30 years, is chairman of the South Mississippi County Medical Association, a member of the hospital committee of the Chamber of Commerce and of the board of the Mississippi County Hospitals, and president of the Osceola Kiwanis Club.

CALIFORNIA

Dr. Blumer Honored—At the annual meeting of the Connecticut State Medical Society in Hamden, Dr. George Blumer, San Marino, president of the Connecticut society in 1920-1921 and a member since 1907, was elected to honorary membership. Dr. Blumer was formerly professor and dean at the Yale University School of Medicine, New Haven, Conn.

Diabetic Camps—According to the *Los Angeles Diabetes Newsletter*, there are two camps for diabetic children in California. Uni-Betic Camp, sponsored by the nonprofit Los Angeles Metabolic Clinic and directed by Dr. William H. Grishaw, is held for two weeks only and is limited to 70 children, with more than half drawn from the clinic at Children's Hospital. Camp site (in the mountains above Redlands), counselors, and staff are "loaned" for the period by University Camp, an all summer project of the University Religious Conference, University of California at Los Angeles. Camp Whitaker, in the mountains above Fresno, near King's Canyon National Park, directed by Dr. Mary B. Olney of the University of California Medical School in San Francisco, is maintained for two 2-week periods each summer. For information write Dr. Olney at 1429-4th Ave., San Francisco 22. For information concerning the 16 other camps for diabetic children in the United States write Chairman, Committee on Camps, American Diabetes Association, 11 W. 42nd St., New York 36.

ILLINOIS

Society News—The Illinois Psychiatric Society has elected the following officers: president, Dr. Alfred P. Bay, Manteno; vice president, Dr. Harry H. Garner, Chicago; secretary-treasurer, Dr. Louis B. Shapiro, Chicago; and councilors, Drs. Jules H. Masserman and Helen V. McLean, Chicago.

Cancer Grants—The Illinois Division of the American Cancer Society has allocated \$57,560 for research in cancer. Dr. Samuel G. Taylor III, clinical associate professor of medicine, University of Illinois College of Medicine, Chicago, received the largest of nine grants (\$11,568) for study of the effects of hormones and various surgical procedures in carcinoma.

Appoint Director of Cleft Palate Institute—Dr. Frederick W. Merrifield, professor emeritus of surgery, Northwestern University Medical School, Chicago, has been appointed director of the Northwestern University Cleft Lip and Palate Institute. Dr. Merrifield, one of the founders of the institute, is a staff member of Passavant Memorial Hospital and Children's Memorial Hospital, and the Evanston Hospital Association. When the institute was established in 1946 \$25,000 was allocated to it from a grant for the rehabilitation of children with facial deformities. Research and education also are phases of the institute program.

Chicago

Dr. Huggins Wins Award—At the annual Symposium on Fundamental Cancer Research, sponsored by the University of Texas M. D. Anderson Hospital for Cancer Research, Houston, the Bertner Foundation award was bestowed on Dr. Charles B. Huggins, professor of surgery, University of Chicago School of Medicine, for his studies in controlling human cancer by physiological methods. Dr. Huggins delivered the annual Bertner lecture. His subject was "The Control of Human Cancer by Hormonal Methods."

Physicians are invited to send to this department items of news of general interest for example those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

Dr Richmond Goes to Syracuse—Dr Julius B Richmond, professor of pediatrics, the University of Illinois College of Medicine, and superintendent of the Institute for Juvenile Research, has been appointed professor of pediatrics at State University of New York College of Medicine at Syracuse. Dr Richmond will be the first full time professor of pediatrics on the college staff, succeeding Dr Tyree C Wyatt, who administered the department on a part-time basis and will continue as clinical professor of pediatrics. After an internship and residency in Chicago hospitals, Dr Richmond graduated from the U S School of Aviation Medicine and served as Chief Flight Surgeon, Army Air Force, Central Instructors School, Randolph Field, Texas. He was lecturer in communicable diseases at the Cook County School of Nursing, lecturer at the School of Social Welfare Administration, and lecturer in biology of human development at the Institute for Psychoanalysis in Chicago, and in 1948 was appointed a John and Mary R Markle Foundation Scholar in the Medical Sciences for a five year period. He was for three years co editor of the "Yearbook of Pediatrics."

MASSACHUSETTS

Grant for Geriatrics Study—A three year grant of \$112,688 has been received from the W K Kellogg Foundation of Battle Creek, Mich., to finance a program in geriatrics at the Harvard School of Public Health, Boston. Dr Hugh R Leavell, head, department of public health practice, will be chairman of the group.

Protein Foundation Formed—Gov Christian A Herter recently delivered to seven business and scientific leaders a charter for a new nonprofit corporation, Protein Foundation, Incorporated, which "will hold and administer patents covering discoveries of importance in the field of therapeutics and public health, arrange for research and development work to make available laboratory discoveries of use to the medical profession, and provide support for continuing basic scientific research." Trustees of the foundation are Chester I Barnard, D Sc, New York, chairman, former president of the Rockefeller Foundation and now chairman of the National Science Foundation, Mr James S Adams, New York, chairman, executive committee, American Cancer Society, Detlev W Bronk, Ph D, president of Johns Hopkins University, Baltimore, and of the National Academy of Sciences, Mr Paul Foster Clark, Boston, chairman, national advisory committee, American Heart Association, Wilbur K Jordan, Ph D, president, Radcliffe College, Cambridge, William M Rank, deputy director of the Mutual Security Agency, and James Norman White, A B, Boston, the investment firm of Scudder, Stevens and Clark. The foundation will hold all patents on inventions in the fields of medicine and public health that have resulted from work by Edwin J Cohn, Ph D, and his associates in the Harvard University Laboratory of Physical Chemistry Related to Medicine and Public Health, and by scientists who have collaborated with the laboratory. The foundation will administer such patents wholly in the public interest, following the policy of Harvard University, which requires that no patent shall be taken out by a member of the university in the field of therapeutics or public health unless it shall be made available in an appropriate manner for the public benefit, without profit to the inventor, the university, or the foundation. The technical advisers to the foundation, the Commission on Plasma Fractionation and Related Processes, under the chairmanship of Dr Cohn, include Dr G J Dalldorf, chief of laboratories, New York State Department of Health, Albany, J Enders, Ph D, associate professor of bacteriology and immunology, Harvard Medical School, and chief of the research division of infectious diseases, Children's Medical Center, Boston, Dr C A Janeway, Rotch Professor of Pediatrics, Harvard Medical School and physician-in-chief of Children's Hospital, Boston, Dr T D Jones, medical director, Helen Hay Whitney Foundation, New York, Dr R I Lee, Boston, member of the Harvard Corporation, Dr G Scatchard, Ph D, professor of physical chemistry, Massachusetts Institute of Technology, and Dr J Stokes Jr, Children's Hospital, Philadelphia.

MICHIGAN

Society News—The Michigan Society of Neurology and Psychiatry recently elected Dr Willard W Dickerson, Caro, president, Dr Orus R Yoder, Ypsilanti, president-elect, Dr Benjamin Jeffries, Detroit, secretary, and Dr Louis Koren, Eloise, treasurer.

Personal—An award for "distinguished service in medicine" has been presented by the Alumni Association of the University of Kansas, Lawrence, Kansas City, to Dr Elwood A Sharp, director of clinical investigation for Parke, Davis & Company, Detroit, since 1929. Before engaging in his research work in Detroit, Dr Sharp served 13 years in the medical corps of the United States Navy, attaining the rank of lieutenant commander. Dr Henry S M Uhl, Detroit, has accepted appointment as medical education director of the Worcester (Mass.) City Hospital. Dr Uhl, an attending staff member of the City of Detroit Receiving Hospital, was formerly affiliated with Johns Hopkins Hospital, Baltimore, Henry Ford Hospital, and Wayne University College of Medicine, Detroit, where he directed research projects in arteriosclerosis and conducted a seminar on ethics and religion in relation to the profession of medicine.

NEW YORK

University News—At the annual meeting of the New York State Hospital Medical Alumni Association, the following officers were elected: Dr Clarence P Oberndorf, New York, president, Dr Richard L. Frank, New York, vice-president, and Dr Samuel R Lehrman, New York, secretary-treasurer.

Clinic for Alcoholics—A daytime branch of the Rochester Clinic for Treatment of Alcoholism, which opened April 15 in Rochester General Hospital, with Dr Harold C Bonner as medical director, was made possible by a \$10,000 grant from the New York State Mental Health Commission. The new clinic, open every Wednesday from 9 a m to 5 p m, will more than double Rochester clinic facilities for alcoholics. According to Dr Ernest M Gruenberg, Syracuse, executive director of the Mental Health Commission, the \$10,000 grant from the commission is matched by contributions from General Hospital, the Health Bureau, and the Health Association of Rochester and Monroe County. The state grant is part of a \$100,000 fund appropriated to the Mental Health Commission last year for development of a clinic program for chronic alcoholics. Other grants have already been made to the University of Buffalo Information and Rehabilitation Center for Alcoholism and to Syracuse Dispensary, Inc., and a fourth grant is pending in New York City.

New York City

Otologists Honor Dr Lempert—The American Otological Society recently presented the 1953 award of merit gold medal "for outstanding achievement" to Dr Julius Lempert, together with an embossed resolution, stating "Your investigations, carried on through trials which would have discouraged a lesser figure, have so perfected the fenestration operation that your technique is accepted throughout the world, and regarded as a boon to mankind. Your remarkable studies, superior surgery and inspiring teaching mark you as the one who has made the greatest single contribution to otology in this generation."

Dr Meleney Goes to Louisiana—The retirement of Dr Henry E Meleney, Hermann M Biggs Professor of Preventive Medicine, New York University College of Medicine, his appointment as professor emeritus of the college, and his appointment to the faculty of Louisiana State University School of Medicine, New Orleans, as professor of research in medicine have been simultaneously announced. Dr Meleney, who has served on the medical faculty of New York University since April, 1941, has also been director of the preventive medicine service at the Medical Center's University Hospital and associate

visiting physician at Bellevue Hospital From 1920 to 1927 he was on the faculty of the Peking Union Medical College in China, and from 1927 to 1941 was associate professor of preventive medicine at Vanderbilt University School of Medicine in Nashville, Tenn. He served as visiting professor of public health at the American University of Beirut in 1949, and for the past two years has been a visiting lecturer at the Harvard School of Public Health. Dr. Meleney, a past president of the American Society of Tropical Medicine and of the American Society of Parasitologists, is currently president of the American Academy of Tropical Medicine.

NORTH CAROLINA

Course in Medical Mycology.—Duke University School of Medicine, Durham, announces a special summer course in medical mycology July 1-29 at the Mycology Laboratory, directed by Norman F. Conant, Ph.D. This is the seventh such course given at Duke since the establishment of its Fungus Registry in 1943, with the support of a grant from the American Foundation for Tropical Medicine.

OHIO

Society News.—At the annual meeting in Cincinnati the Ohio State Medical Association installed Dr. Paul A. Davis, Akron, as president and chose Dr. Merrill D. Prugh, Dayton, as president-elect. Dr. Richard L. Meiling, Columbus, will continue to serve as treasurer and Mr. C. S. Nelson as executive secretary. The 1954 annual meeting will be held in Columbus, April 13-15, and the 1955 annual meeting in Cincinnati, April 19-21.

Mission to Israel.—Dr. Milton Rosenbaum, professor of psychiatry at the University of Cincinnati College of Medicine, recently went to Israel to assist in the establishment of a new department of psychiatry at the Hebrew University-Hadassah Medical School. His special assignment was made possible by a grant of \$150,000 from the Julius and Marie Scheider Memorial Fund for Neuropsychiatry to the Hebrew University-Hadassah Medical School. The grant, covering a 10 year period, is specifically earmarked for psychiatric teaching and research, and for work in neurology. Dr. Rosenbaum, who will be in Israel between three and four months as visiting professor of psychiatry, will integrate the clinical resources of the Rothschild-Hadassah University Hospital and Outpatient Clinic, Lasker Mental Hygiene Clinic of Hadassah, Ezra's Mental Hospital, and the Talbich Psychiatric Hospital, into the teaching program of the new department.

OREGON

Narcotic Violation.—Dr. William Leroy Teutsch, 3011 S. W. Alice St., Portland, was convicted in the U. S. District Court at Portland of violating the federal narcotic law. On March 10 Dr. Teutsch was sentenced to serve a term of three years.

Dr. Swan Awarded Medal.—Dr. Kenneth C. Swan, head, department of ophthalmology at University of Oregon Medical School, Portland, was awarded the Proctor medal at the annual meeting in June of the Association for Research in Ophthalmology in New York. The Proctor medal, established in 1947 by Mrs. Francis I. Proctor in memory of her husband, a Boston ophthalmologist, has been awarded only three times previously. Dr. Swan won the award as the result of nearly 20 years of research on (1) drugs and their effects on diseases of the eye, (2) the basic physiology of ocular movements and abnormalities of coordination, and (3) the causes and prevention of blindness. He has been instrumental in setting up a state-wide ophthalmologic care program and a program for the prevention of blindness and the conservation of vision. As part of this program, he and Dr. Leonard Christensen, assistant professor of ophthalmology, are conducting, under a Kellogg Foundation grant, a three year survey in Oregon on causes of blindness.

PENNSYLVANIA

Dr. Harvey Smith Receives Cancer Award.—Dr. Harvey F. Smith, Harrisburg, has received the American Cancer Society's bronze medal and citation for "outstanding contributions" in the work of cancer control. Now in his 82nd year, Dr. Smith was one of the pioneers in cancer control work in Pennsylvania and a founder of the Wainwright Tumor Clinic program. He retired 10 years ago as chief of the surgical staff at the Harrisburg Hospital, but still is active in his professional career. A member of the first Commission on Cancer of the Medical Society of the State of Pennsylvania, he served continuously from the time of its formation in 1912 until 1933 and has subsequently been a member of the commission at various times.

Philadelphia

University News.—Dr. Russell S. Boles has been appointed professor of clinical medicine in the University of Pennsylvania School of Medicine.

Hospital Health Museum.—Philadelphia's new Lankenau Hospital, to be opened this year, will house a health museum, reportedly the first hospital health museum in the world. There will be permanent exhibits, including animated anatomy, supplemented by changing displays reflecting new advances in the health field. These will feature normal growth and development in relation to maternity, childhood, youth, maturity, and old age. The prevention of chronic and degenerative diseases will be part of the educational program. The museum and auditorium are made possible through a \$300,000 gift.

Personal.—Dr. Charles E. Price, medical director of Hahnemann Hospital since 1948, will leave June 30 to become medical director of the General Hospital of Fresno County, Fresno, Calif. Dr. Price was formerly assistant administrator, Montgomery Hospital, Norristown, Pa. —Dr. Russell S. Boles has been appointed a consultant to the National Cancer Institute, U. S. Public Health Service, Washington, D. C. —Dr. Harry E. Bacon, professor of proctology, Temple University School of Medicine, received the honorary degree of doctor of science from Ursinus College, Collegeville, June 1.

WEST VIRGINIA

Society News.—Dr. James K. Stewart, Wheeling, was recently elected president of the West Virginia Academy of Ophthalmology and Otolaryngology. Dr. Benjamin W. Bird, Princeton, was named president-elect and Dr. Henry C. Hays, Williamson, vice president. Dr. Frederick C. Reel, Charleston, was re-elected secretary-treasurer. The next annual meeting of the academy will be at the Greenbrier, White Sulphur Springs, May 27-29, 1954. —Fred J. Holter, Ph.D., Morgantown, graduate advisor in the School of Physical Education of West Virginia University, and health education consultant to the state department of health, has been elected chairman of the West Virginia Organizations' Council, a new organization composed of groups interested in health, welfare, rehabilitation, recreation, and allied fields. Dr. William H. Rheldaffer, Charleston, United Mine Workers medical administrator, was named secretary. The group plans to enlarge the organization to include between 40 and 50 official and voluntary state groups "engaged in or otherwise concerned with providing services related to the well being of the citizens of West Virginia."

WISCONSIN

Civil Defense Medical Teams.—A new manual for the personnel of mobile medical teams has been prepared and edited for the Office of Civil Defense by Warren H. Southworth, Dr. P.H., professor of health education at the University of Wisconsin-Madison. The manual contains information on the atomic bomb, state organization for civil defense, make up of mobile medical teams, emergency treatment of disaster casualties, control of radiological hazards, and defenses against biological and chemical warfare. It also supplies suggestions for medical team instruction. The appendix carries a bibliography of helpful publications for medical team instruction, and lists films and filmstrips for the same purpose.

GENERAL

Casselberry Award—A sum of money having accrued from the Casselberry Fund of the American Laryngological Association, a prize will be offered in 1954 for original investigation in the art and science of laryngology or rhinology. Materials must be in the hands of the secretary, Dr Harry P Schenck, 326 S 19th St, Philadelphia, before March 1, 1954.

Gift of Hormone Tablets to India—A gift of more than 7 million hormone tablets for free distribution in India through the Indian Medical Association has been made by White Laboratories, Inc, pharmaceutical manufacturers, Kenilworth, N J, which offered them to the World Medical Association for distribution in a part of the world where economic conditions prevent large numbers of the persons from obtaining such drugs.

Cerebral Palsy Award—The Research Advisory Board of United Cerebral Palsy invites nominations for the third annual United Cerebral Palsy Max Weinstein award (a plaque and \$1,000) for the outstanding recent scientific achievement in the field of cerebral palsy. Nomination, accompanied by a short supporting statement, should be sent before Sept. 15 to Dr Glidden L Brooks, Medical Director, United Cerebral Palsy, 50 W 57th St., New York 19.

Tri-State Medical Journal—This new journal is being published by the Tri-State Medical Association of the Carolinas and Virginia under the editorship of Dr Richard B Davis, Greensboro, N C. The editorial board consists of Drs Frank S Johns, William R Jordan, and Howard R Masters, Richmond, Va., Drs William M Nicholson and R Burke Sutt, Durham, N C., Dr Walter G H Pott, Greenville, N C., and Dr George R Wilkinson, Greenville, S C., and Drs Joseph I Waring and Robert Wilson Jr, Charleston, S C.

Pharmaceutical Association Sponsors Contest—The New York State Pharmaceutical Association announces a nationwide contest to discover an effective plan for eliminating the needless duplication and imitation of drug products. The contest, which closes Sept 30, is open to everyone and offers three prizes \$500, \$300, and \$200. All entries must be "practical in nature and not of a visionary character" and "legal in concept under existing federal and state laws or at least not require the enactment of new legislation of doubtful constitutionality," and must avoid anything that might suggest boycotting methods or procedures. Manuscripts, typed in triplicate, should be addressed as follows: Duplication, New York State Pharmaceutical Association, 117-119 E 69th St., New York 21.

Dermatological Meeting in Seattle—The Pacific Dermatologic Association will hold its annual meeting at the Olympic Hotel, Seattle, July 9-10. Dr Norman N Epstein, San Francisco, will deliver the presidential address on "The Role of Cholesterol Metabolism in Dermatology," Thursday at 9 a m, after which Dr Earl D Osborne, Buffalo, will speak on "Treatment of Cancer by the Dermatologist." Dr Osborne will also lead round table discussions on malignant cutaneous lesions Thursday at 10 20 a m, and industrial dermatoses at 3 p m. Other guest speakers will be Dr Robert S Pollack, San Francisco, (Surgical Treatment of Advanced Epithelial Tumors), Dr Lloyd M Farner, Seattle ('Rehabilitation in Industrial Dermatoses'), and Dr Thrift G Hanks, Seattle ('Industrial Dermatoses in the Aircraft Industry'). Dr Thomas B Fitzpatrick, Portland, Ore., will discuss melanomas during the morning session. A cocktail party and dinner for members and wives will be held at the Rainer Club at 6 30 p m. The clinical meeting Friday at the University of Washington will be followed by luncheon round table discussion groups, after which a histopathological seminar will be held.

Transplantation Bulletin—Plans are under way to issue a quarterly *Transplantation Bulletin* which will publish once yearly a list of all practicing physicians and research workers here and abroad who are interested in transplantation problems. The registry will cover the fields of plastic surgery,

endocrinology, cancer, genetics, immunology, and experimental morphology. The managing editors are Dr Herbert Conway, Cornell University Medical College, New York, Dr Ernst J Eichwald, University of Utah College of Medicine, Salt Lake City, and Nathan Kaliss, Ph D, Roscoe B Jackson Memorial Laboratory, Bar Harbor, Me. Dr Blair O Rogers, Columbia University College of Physicians and Surgeons, New York, is associate editor. The *Transplantation Bulletin* invites workers in medicine and biology interested in tissue transplantation to submit their names and fields of interest to Dr Ernst J Eichwald, University of Utah College of Medicine, Salt Lake City. A subscription fee of \$3 to cover the expenses of printing the bulletin and maintenance of the registry and bibliography will be payable after publication of the first issue of the bulletin, probably in August.

Prevalence of Poliomyelitis—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories, and possessions in the weeks ended as indicated:

Area	June 13-19, 53		June 7-13, 52 Total
	Paralytic Type	Total Cases Reported	
New England States			
Maine	1	3	
New Hampshire		3	
Vermont			
Massachusetts			1
Rhode Island			
Connecticut	2	3	
Middle Atlantic States			
New York	5	16	1
New Jersey		2	
Pennsylvania		4	
East North Central States			
Ohio	7	18	8
Indiana		3	
Illinois	4	8	
Michigan	3	4	2
Wisconsin		4	
West North Central States			
Minnesota	4	12	2
Iowa		5	1
Missouri	1	2	3
North Dakota	1	1	4
South Dakota			3
Nebraska	2	3	1
Kansas		7	
South Atlantic States			
Delaware			1
Maryland			
District of Columbia		1	
Virginia		3	1
West Virginia	2	3	4
North Carolina	9	13	
South Carolina	3	3	
Georgia		8	2
Florida	2	10	13
East South Central States			
Kentucky		3	4
Tennessee		7	4
Alabama	11	23	19
Mississippi		13	
West South Central States			
Arkansas	4	8	8
Louisiana	5	16	14
Oklahoma	3	11	1
Texas	12	40	80
Mountain States			
Montana			1
Idaho			1
Wyoming		2	
Colorado	1	3	3
New Mexico		2	
Arizona	2	4	3
Utah			
Nevada			2
Pacific States			
Washington		2	4
Oregon	2	3	3
California	10	25	28
Territories and Possessions			
Alaska		1	4
Hawaii		1	
Puerto Rico	1	1	
Total	98	308	222

Cancer Conference in Denver—The Rocky Mountain Cancer Conference will be held at the Shirley Savoy Hotel, Denver, July 8-9 under the sponsorship of the Colorado State Medical Society and the Colorado Division of the American Cancer Society. The address of welcome by Dr William A Liggett, Denver, president of the Colorado State Medical Society, will be followed by a symposium on hematuria (Dr T Leon Howard, Denver, presiding) in which Drs Ralph M Caulk, Washington, D C, John R McDonald, Rochester, Minn, Henry D Diamond, New York, and Rubin H Flocks, Iowa City, will participate. Dr Sam W Downing, Denver, will preside at the round table luncheon and Dr Claude D Bonham, Boulder, president-elect, Colorado State Medical Society, at the afternoon session. First individual presentations by guest speakers include the following subjects:

Cutaneous Manifestations of the So-Called Lymphoblastomas Francis W Lynch St Paul
Early Diagnosis of Premalignant and Malignant Lesions of the Colon John W Cline San Francisco
Cancer of the Cervix: Why the High Death Rate When Most Early Cases Are Curable? Willard M Allen St. Louis
Mechanism of Spread of Carcinoma of the Breast Cushman D Haagensen New York
Problem of Cervical Cancer as Viewed by a Radiotherapist Ralph M Caulk Washington D C
Treatment of Special Complications of Lymphomas and Leukemias Henry D Diamond New York
Treatment of Carcinoma of the Prostate Rubin H Flocks Iowa City
Carcinoma of the Thyroid John R McDonald Rochester Minn

An informal banquet at 7 p m for physicians and their guests will be preceded by a social hour in the Lincoln Room. Dr Lumir R Safarik, president, Denver Medical Society, will preside over the Thursday morning session, Dr Kenneth C Sawyer, Denver, over the afternoon session, and Dr John S Bouslog, Denver, president, Colorado Division, American Cancer Society, at the round table luncheon.

FOREIGN

Congress of Hippocratic Medicine—The International Congress of Hippocratic Medicine will conduct its Journées Médicales in Evian, France, Sept 3-6. Papers will be delivered on the relations between hippocratism and general pathology, constitutional medicine, hygiene and therapy, surgery, and sociology. Enrollment must be received before Aug 15. Information may be obtained from M Paul Maubert, Direction Cachat, Evian (Haute Savoie), France. Prof Pierre Delore, 13, rue Jarente, Lyon, is in charge of scientific communications.

Congress for the History of Science—The International Congress for the History of Science, of which Prof F S Bodenheimer, Hebrew University, Jerusalem, Israel, is president, will meet in Jerusalem during the first week of August under the auspices of the International Academy and the International Union for the History of Science. Among the physicians listed on the program for the section on medicine are Dr Chester N Frazier, Boston ("Medicine in the New Harmony of Robert Owen—1825-1827"), Dr Hyman I Goldstein, Camden, N J ("Errors of Priority Credit in Medicine"), and Dr Samuel M Dodel, Washington, D C ("History of Human Tocography").

China and Nepal to Participate in WHO Program—Pursuant to arrangements made by the World Health Assembly whereby China's annual contribution, amounting to not less than \$10,000, would be accepted for 1954, and payment equivalent to \$125,000 would be accepted on account of contributions in arrears, the Republic of China has announced resumption of active participation in the work of WHO. Nepal was accepted as the 80th full member of WHO at its meeting in Geneva. The program and budget committee of the assembly adopted an effective working budget of \$8,497,700 to finance the 1954 program of WHO. This amount represents an increase of \$12,605 over the 1953 budget but is \$49,502 under the recommendations made in January by the WHO Executive Board and the director-general Dr Brock Chisholm. "The effective working budget of the World Health Organization for 1954 will consist of assessments against the 70 active member states and 3 associate members plus casual income. The intangible assessments against 10 inactive members are currently omitted."

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

ALASKA * Anchorage and Juneau Sept 7 Sec Dr W M Whitehead 172 South Franklin St Juneau

COLORADO * *Reciprocity* Denver July 14 Final date for filing applications was June 12 Exec Sec Mrs B H Hudgens 831 Republic Bldg Denver 2

CONNECTICUT * *Regular Examination* Hartford July 14-15 Sec Dr Creighton Barker 160 St Ronan St New Haven *Homeopathic* Derby July 14-15 Sec Dr Donald A Davis 38 Elizabeth St Derby

DELAWARE Dover July 14-16 Sec Dr Joseph S McDaniel 229 South State St Dover

GUAM The Commission on Licensure will meet whenever a candidate appears or submits his credentials Ex. Sec. Dr Austin W Matthis Agaña

HAWAII *Examination* Honolulu July 13-15 Sec Dr I L Tilden 1020 Kaplalani St Honolulu

IDAHO Boise July 13-15 Exec Sec Mr Armand L Bird 364 Sanna Bldg Boise

ILLINOIS Chicago July 7-9 Supt of Regs Mr Fredric B Selcke Capitol Bldg Springfield

MAINE *Reciprocity and Examination* Augusta July 14-15 Sec Dr Adam P Leighton 192 State St Portland

MASSACHUSETTS *Examination* Boston July 14-17 Sec Dr Robert C. Cochrane Room 37 State House Boston 33

MONTANA Helena Oct 5 Sec Dr S A Cooney 214 Power Block Helena

NEW HAMPSHIRE Concord Sept 9 Sec Dr John S Wheeler 107 State House Concord

NEW MEXICO * Oct 12-13 Santa Fe Sec R C Derbyshire 227 E Palace Ave Santa Fe

NORTH CAROLINA *Reciprocity* Blowing Rock Aug 1 Sec Dr Joseph J Combs 716 Professional Bldg Raleigh

NORTH DAKOTA Grand Forks July 8-11 Sec Dr C J Glaspel Grafton

OREGON * *Examination* Portland July 9-10 *Reciprocity* Portland July 24 Exec Sec Mr Howard I Bobblitt 609 Falling Bldg Portland

PENNSYLVANIA *Examination* Philadelphia and Pittsburgh July Act Sec Mrs Margaret G Steiner Box 911 Harrisburg

RHODE ISLAND * Providence July 2-3 Administrator of Professional Regulation Mr Thomas B Casey 366 State Office Bldg Providence

UTAH *Examination* Salt Lake City July Asst. Dir Mr Frank E. Lees 324 State Capitol Bldg Salt Lake City

WASHINGTON * Seattle July 12-15 Sec Mr Edward C Dohm, Department of Licenses Olympia

WEST VIRGINIA Charleston July 13-15 Sec. Dr N H Dyer State Office Bldg Charleston 5

WISCONSIN * *Examination* Milwaukee July 14-16 Sec Dr A. G Koehler 46 Washington Blvd Oshkosh

PUERTO RICO *Reciprocity* Santurce Aug 4 Sec Mr Luis Cueto Coll Box 9156 Santurce

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA On application Juneau or other towns in Territory as decided by Board *Reciprocity* On application Sec Dr C Earl Albrecht Box 1931 Juneau

COLORADO *Examination* Denver Sept 9-10 Sec. Dr Esther B Starks 1459 Ogden St. Denver 18

DISTRICT OF COLUMBIA *Examination* Washington Oct. 19-20 Sec, Dr Daniel L Seckinger 4130 E Municipal Bldg Washington

IOWA Des Moines July 14 Sec Dr Ben H. Peterson Coe College Cedar Rapids

NEVADA Reno July 7 Sec Mr Frank Richardson University of Nevada Reno

OKLAHOMA *Examination* Oklahoma City August 28-29 Sec Dr Clinton Gallaher 813 Braniff Bldg Oklahoma City

TENNESSEE Memphis July 2-3 Sec Dr O W Hyman 874 Union Ave. Memphis

TEXAS *Examination* Austin October Chief Clerk Mrs Sandra Allen 407 Perry Brooks Bldg Austin

WASHINGTON *Examination* Seattle, July 8-9 Sec Department of Licenses Mr Edward C. Dohm, Olympia

WISCONSIN *Examination* Madison Sept 19 Final date for filing application is Sept 11 Sec Dr W H Barber, 621 Ransom St. Ripon.

* Basic Science Certificate required.

MEETINGS

AMERICAN MEDICAL ASSOCIATION Dr George F Lull 535 North Dearborn St. Chicago 10 Secretary
1953 Clinical Session, St Louis, Dec. 1-4
1954 Annual Session, San Francisco, June 21-25
1954 Clinical Session Miami Florida Nov 30 Dec 3
1955 Annual Session, Atlantic City, N J, June 6-10
1955 Clinical Session, Boston, Nov 29 Dec 2

ALASKA TERRITORIAL MEDICAL ASSOCIATION Sitka July 15-17 Dr William P Blanton P O Box 2569 Juneau Secretary

AMERICAN ELECTROENCEPHALOGRAPHIC SOCIETY Commander and Continental Hotels Cambridge Mass Aug 17-22 Dr John A Abbott Massachusetts General Hospital Boston 14 Secretary

AMERICAN ORTHOPEDIC ASSOCIATION The Homestead Hot Springs Va, June 20-July 1 Dr George O Eaton 4 East Madison St Baltimore 2, Secretary

AMERICAN VETERINARY MEDICAL ASSOCIATION Royal York Hotel Toronto Canada July 20-23 Dr J G Hardenbergh 600 South Michigan Blvd Chicago 5 Executive Secretary

NATIONAL MEDICAL ASSOCIATION Nashville, Tenn Aug 10-14 Dr John T Glivens 1108 Church St Norfolk 10 Va Executive Secretary

PACIFIC DERMATOLOGIC ASSOCIATION Olympic Hotel and University of Washington, Seattle July 9-10 Dr Ervin H Epstein 447 29th St Oakland 9 Calif Secretary

POST GRADUATE MEDICAL ASSEMBLY OF SOUTH TEXAS Shamrock Hotel Houston July 20-22 Dr C A Dwyer 229 Medical Arts Bldg Houston Secretary

ROCKY MOUNTAIN CANCER CONFERENCE Denver July 8-9 Mr Harvey T Sethman 835 Republic Bldg Denver 2 Secretary

SOCIETY OF AMERICAN BACTERIOLOGISTS Palace Hotel San Francisco Aug 10-14 Dr John H Bailey Sterling Winthrop Research Institute Rensselaer N Y, Secretary

WEST VIRGINIA STATE MEDICAL ASSOCIATION The Greenbrier White Sulphur Springs July 23-25 Mr Charles Lively, P O Box 1031 Charleston 24 Executive Secretary

FOREIGN

ASSOCIATION OF SURGEONS OF GREAT BRITAIN AND IRELAND Leeds England, May 13-15 1954 Dr Henry W S Wright 45 Lincoln's Inn Fields London WC2, England Honorary Secretary

BRITISH MEDICAL ASSOCIATION Cardiff S Wales July 13-17 Dr A. MacCrae B M A. House Tavistock Square London WC1 England Secretary

CONGRESS OF INTERNATIONAL ANESTHESIA RESEARCH SOCIETY Chateau Frontenac Quebec Canada October 26-29 Dr A William Erlend 515 Nome Ave Akron 20 Ohio Chairman Program Committee

CONGRESS OF THE INTERNATIONAL ASSOCIATION OF LIMNOLOGY Cambridge and Windermere England Aug 20-30 For information write Professor G C Hutchinson Osborn Zoological Laboratory Yale University New Haven Conn U S A

CONGRESS OF INTERNATIONAL LEAGUE AGAINST RHEUMATISM Geneva and Zurich Switzerland Aug 24-29 For information write Dr W Tegner, The London Hospital London E1 England

CONGRESS OF THE INTERNATIONAL SOCIETY OF ANGIOLOGY Lisbon Portugal Sept 18-20 Dr Henry Halmovici 105 East 90th St New York 28 N Y U S A Secretary

CONGRESS OF THE INTERNATIONAL SOCIETY OF SURGERY Lisbon Portugal Sept 14-20 Dr L DeJardin 141 rue Belliard Brussels Belgium General Secretary

INTERNATIONAL CONFERENCE ON THROMBOSIS AND EMBOLISM Basle Switzerland July 15-19 1954 Dr W Merz, Chief Medical Officer Gynecological Clinic University of Basle Basle Switzerland Hon Secretary

INTERNATIONAL CONGRESS OF ACUPUNCTURE Kolpinghaus Adolf Kolping Strasse 1 Munich Germany August 22-25 Dr G Bachmann 29 Lilienstrasse München 9 Germany Organizer and Secretary

INTERNATIONAL CONGRESS OF ELECTROENCEPHALOGRAPHY AND CLINICAL NEUROPHYSIOLOGY Boston Mass U S A Aug 18-21 Dr Robert S Schwab Massachusetts General Hospital Boston 14 Mass U S A Secretary-General

INTERNATIONAL CONGRESS OF THE EUROPEAN SOCIETY OF HAEMATOLOGY Amsterdam Holland Sept 8-12 Dr M C Verloop Malleinple 15 Utrecht Holland Secretary

INTERNATIONAL CONGRESS ON GENETICS Bellagio, Italy August 24-31 Prof C. Barigozzi Istituto di Genetica Università di Milano 10 via Celoria Milan Italy Secretary

INTERNATIONAL CONGRESS OF HIPPOCRATIC MEDICINE Evian France Sept. 3-6 Prof P Delore 13 rue Jarente Lyon France Secretary-General

INTERNATIONAL CONGRESS FOR HISTORY OF SCIENCE Jerusalem Israel August 3-7 Prof F S Bodenheimer Hebrew University Jerusalem Israel President

INTERNATIONAL CONGRESS OF HYDROCLIMATISM AND THALASSOTHERAPY Dubrovnik Yugoslavia May 8-16 1954 Prof C. Plavsky Zeleni Venac 1, Belgrade Yugoslavia Secretary General

INTERNATIONAL CONGRESS OF INTERNATIONAL COLLEGE OF SURGEONS Sao Paulo Brazil April 26-May 2 1954 Dr Max Thorek 1516 Lake Shore Drive Chicago Illinois U S A Secretary-General

INTERNATIONAL CONGRESS OF LOGOPEDICS AND PHONOTRICS Zurich Switzerland Sept 1-5 Dr Deso A Weiss 115 East 86th St New York 28 N Y U S A General Secretary

INTERNATIONAL CONGRESS ON MEDICAL LIBRARIANSHIP London England July 20-25 Mr W R LeFanu % London School of Hygiene and Tropical Medicine Keppel Street London WC1 England Chairman

INTERNATIONAL CONGRESS ON MENTAL HEALTH University of Toronto Toronto Ontario Canada Aug 14-21 1954 For information write Executive Officer International Congress on Mental Health, 111 St George St Toronto Ontario Canada

INTERNATIONAL CONGRESS OF MICROBIOLOGY Rome Italy Sept 6-12 For information write Dr V Puntoni Citta Universitaria Rome Italy

INTERNATIONAL CONGRESS ON OBSTETRICS AND GYNECOLOGY Geneva Switzerland July 26-31 1954 Dr H de Wetteville Maternité Hôpital Cantonal Geneva Switzerland President

INTERNATIONAL CONGRESS OF PAEDIATRICS Havana Cuba Oct 12-17 Prof Felix Hurtado 5a Avenue 124 Miramar Havana Cuba President

INTERNATIONAL CONGRESS OF PSYCHOLOGY Montreal Canada June 7-12, 1954 For information write Prof H S Langfeld International Union of Scientific Psychology, Eno Hall Princeton University Princeton, N J U S A

INTERNATIONAL CONGRESS OF RADIOLOGY Copenhagen Denmark, July 19-25 Professor Flemming Norgaard 10 Oster Voldgade Copenhagen K Denmark Secretary General

INTERNATIONAL CONGRESSES OF TROPICAL MEDICINE AND MALARIA Istanbul, Turkey Aug 28-Sept 4 Professor Dr Ihsan Sükrü Aksel Tuncel Meydam Bejoglu Istanbul Turkey General Secretary

INTERNATIONAL CONVENTION OF X RAY TECHNICIANS Royal York Hotel, Toronto Canada June 28-July 2 For information write Miss Beatrice Hurley R T, Registrar St. Catherine Hospital, East Chicago Ind U S A

INTERNATIONAL GERONTOLOGICAL CONGRESS London and Oxford England, July 12-22 1954 Prof R E Tunbridge General Infirmary Department of Medicine The University Leeds England President

INTERNATIONAL LEPROSY CONGRESS Madrid Spain Oct 3-10 Dr Felix Contreras Moreto 15 Madrid Spain Secretary

INTERNATIONAL NEUROLOGICAL CONGRESS Lisbon Portugal Sept 7-12 Prof Almeida Lima Avenida do Brazil 53 Lisbon Portugal Secretary-General

INTERNATIONAL PHYSIOLOGICAL CONGRESS Montreal Canada Aug 31-Sept 4 Dr A S V Burgen Dept of Physiology McGill University Montreal Canada Secretary

INTERNATIONAL PSYCHO-ANALYTICAL CONGRESS Bedford College Regents Park London NW1 England July 26-30 Dr Ruth S. Eisler 285 Central Park West, New York 24 N Y, Hon Secretary

INTERNATIONAL SOCIETY FOR THE STUDY OF BIOLOGICAL RHYTHMS Basle Switzerland Sept 18-19 For information write Prof Dr F Georgi Neurologische Universitäts Poliklinik Sochinstrasse 55 Basle Switzerland

INTERNATIONAL VETERINARY CONGRESS Stockholm Sweden Aug 9-15 Prof Axel Isaksson Institute of Veterinary Medicine Stockholm 50 Sweden Secretary

IRISH MEDICAL ASSOCIATION Waterford Ireland July 1-4 Dr P J Delaney 10 Fitzwilliam Place Dublin Ireland Medical Secretary

JOURNEES MEDICALES Paris France April 21-25 1954 For information write Secretariat of the Journees, 12 rue Pierre-Geoffroy, Colombes (Seine) France

LATIN AMERICAN CONGRESS OF OBSTETRICS AND GYNECOLOGY Buenos Aires Argentina Oct 26-31

LATIN AMERICAN CONGRESS OF OTORHINOLARYNGOLOGY Caracas, Venezuela, Feb 21-25 1954 Dr Victorino Marquez Reveron Centro Medico Caracas Venezuela Secretary-General

PACIFIC SCIENCE CONGRESS Quezon City and Manila Philippines Nov 16-28 Dr Patrocinio Valenzuela College of Pharmacy University of the Philippines Quezon City Philippines Secretary-General

PAN AMERICAN CONGRESS OF THE MEDICAL PRESS Buenos Aires, Argentina, July 12-16 Secretaría del Congreso 763 Uriburu Buenos Aires Argentina

PAN AMERICAN CONGRESS OF OTORHINOLARYNGOLOGY AND BRONCHESOPHAGOGY Mexico D F Mexico Feb 28-March 4 1954

PAN AMERICAN MEDICAL WOMEN'S ALLIANCE Beekman Towers Hotel New York N Y Sept 24-Oct 1 Dr Ina Marsh 140 Linwood Ave Buffalo N Y U S A Registration Chairman

SECTIONAL MEETING AMERICAN COLLEGE OF SURGEONS London England, May 17-19 1954 Dr Michael L. Mason 40 East Erie St, Chicago 11 Ill, U S A Secretary

WORLD CONFERENCE ON MEDICAL EDUCATION British Medical Association House Tavistock Square WC1 London England, Aug 22-29 Secretariat World Medical Association 2 East 103d St New York 29 N Y, U S A

WORLD CONGRESS OF THE WORLD CONFEDERATION FOR PHYSICAL THERAPY London England Sept 7-12, Miss M J Neilson Chartered Society of Physiotherapy Tavistock House South Tavistock Square London WC1 England Secretary

WORLD MEDICAL ASSOCIATION The Hague Netherlands Aug. 31-Sept. 7 Dr Louis H Bauer 2 East 103d St. New York 29 N Y., Secretary-General

DEATHS

Fitz, Reginald * Boston, member of the Council on Medical Education and Hospitals of the American Medical Association for many years, died at his home in Brookline, Mass., May 27, aged 68. Dr. Fitz was born in Boston Feb. 28, 1885. He graduated from Harvard University, Cambridge, in 1906, and received his M.D. degree from Harvard Medical School in Boston in 1909. Early in his career he served on the staffs of the Massachusetts General Hospital in Boston, Peter Bent Brigham Hospital in Boston, Johns Hopkins Hospital in Baltimore, and the Hospital of the Rockefeller Institute for Medical Research in New York. During World War I he became a major in the medical corps of the American Expeditionary Forces at Base Hospital no. 5 in France. He was associated with the Mayo Clinic in Rochester, Minn., from 1920 to 1922. In 1914-1915 he was a fellow in physiology at Harvard, where from 1922 to 1936 he was associate professor of medicine, since 1936 lecturer in the history of medicine, since 1947 assistant dean, and since 1935 university marshal. In 1936 Dr. Fitz was appointed Wade Professor of Medicine at Boston University School of Medicine and director of the Evans Memorial, serving until 1940, when he became clinical associate at the Thorndike Memorial Laboratory. In the American Medical Association, he was secretary of the Section on Practice of Medicine from 1929 to 1932 and chairman in 1932-1933, member of its House of Delegates in 1935, 1936, and 1939, and member of the Council on Medical Education and Hospitals from 1928 to 1949. For many years he was a member of the National Board of Medical Examiners and the American Board of Internal Medicine, of which he was chairman from 1944 to 1946. He was a member of the board of regents of the American College of Physicians, serving as vice president in 1947-1948 and president in 1949-1950, past president and from 1930 to 1940 chairman of the committee on medical education diplomas, Massachusetts Medical Society, past president of the Suffolk District Medical Society, member of the Massachusetts Heart Association, American Society for Clinical Investigation, American Association for the History of Medicine, Boston Tuberculosis Association, of which he was past president, Medical Library Association, Special Library Association, American Academy of Arts and Sciences, and the Colonial Society of Massachusetts. He was a member of the board of honorary consultants to the Army Medical Library in Washington, D.C., a medical adviser to the Boston metropolitan chapter of the American Red Cross, and trustee and president of the Perkins Institute for the Blind, and trustee of the Brookline Public Library, Wellesley College, and Boston Medical Library, of which he was vice-president. From 1940 to 1947 he was chairman of the Selective Service medical advisory board in Boston. In 1943 he received the honorary degree of doctor of science from Western Reserve University in Cleveland and in 1947 the honorary degree of doctor of laws from Hahnemann Medical College, Philadelphia. Dr. Fitz was a member of the editorial board of the *Archives of Internal Medicine*.

Holmes, Will Wane * Logansport, Ind., born in Fairland, Ind., in 1888, Indiana University School of Medicine, Indianapolis, 1913, specialist certified by the American Board of Otolaryngology, member of the American Academy of Ophthalmology and Otolaryngology, past president of the 11th Indiana Council on District Medical Association, president-elect of the Indiana Academy of Ophthalmology and Otolaryngology, served during World Wars I and II, affiliated with St. Joseph Hospital and the Memorial Hospital, where he died April 28, aged 64, of myocardial infarction.

Fischer, Luther C * Atlanta, Ga., born in Senora, Ga., Aug. 18, 1871, Atlanta College of Physicians and Surgeons, 1899, at one time vice president of the Southeastern Surgical Congress, past president of the Georgia Hospital Association, in

1925 to stimulate interest in research and to improve medical writing, established the L. C. Fischer prizes to be awarded through the Fulton County Medical Society, co-founder and, since 1932, owner of the Crawford W. Long Memorial Hospital, of which he was president and treasurer, died April 29, aged 81, of cerebral hemorrhage.

Moore, Gertrude * Oakland, Calif., born in 1883, Oakland College of Medicine and Surgery, 1907, specialist certified by the American Board of Pathology, founding fellow of the College of American Pathologists, member of the American Society of Clinical Pathologists, served as secretary of the Alameda County Medical Association, consulting pathologist, East Oakland, Providence, and Highland Alameda County hospitals, for many years consulting pathologist for the county district attorney's office, died May 3, aged 69, of subacute bacterial endocarditis.

Barry, Jesse R * Picher, Okla., American Medical College, St. Louis, 1899, formerly practiced in Cartersville, where he served two terms as mayor, died in Miami April 28, aged 83.

Bennett, Joseph Hammond, Wadesboro, N.C., University of Maryland School of Medicine, Baltimore, 1894, died March 7, aged 82, of uremia.

Berman, Edward * Utica, N.Y., Marquette University School of Medicine, Milwaukee, 1926, on the staff of the Memorial Hospital, died April 14, aged 53, of a heart attack.

Bernstein, Abraham, Philadelphia, Jefferson Medical College of Philadelphia, 1917, died May 10, aged 60, of heart failure.

Bickelhaupt, Bertram Samuel, Greenwood Lake, N.Y., Columbia University College of Physicians and Surgeons, New York, 1906, on the honorary staff of St. Anthony's Hospital in Warwick, died in Union Hospital in New York April 15, aged 68, of carcinoma.

Binford, Nellie, Los Angeles, Northwestern University Woman's Medical School, Chicago, 1901, died April 27, aged 80.

Boone, Benjamin Edwards Jr * Elkton, Ky., Vanderbilt University School of Medicine, Nashville, Tenn., 1910, member of the American Academy of General Practice, secretary of Todd County Medical Society, member of the Elkton and Todd County school boards, county health officer, died in Jennie Stuart Hospital, Hopkinsville, April 9, aged 66, of hypertensive cardiovascular disease.

Cordes, Henry Boyleston * Frostproof, Fla., Emory University (Ga.) School of Medicine, 1915, died in Lake Wales, March 30, aged 65, of dissecting aneurysm of the abdominal aorta and arteriosclerosis.

Crockett, Horace Eugene, Indianapolis, Memphis (Tenn.) Hospital Medical College, 1899, died in St. Elizabeth Hospital, LaFayette, Ind., Feb. 27, aged 76, of gastrointestinal hemorrhage.

Crooks, Toney Taylor * Chicago, Rush Medical College, Chicago, 1923, served during World War I, on the staff of the Norwegian American Hospital, where he died May 9, aged 65, of carcinoma of the lung.

Dally, John Eugene * Indianapolis, St. Louis University School of Medicine, 1920, formerly practiced in Terre Haute, Ind., where he was health officer, police surgeon on the staff of St. Anthony's Hospital, and draft board medical examiner, served during World War I, affiliated with St. Vincent's Hospital, medical director of the Larue D. Carter Memorial Hospital, died April 20, aged 58, of coronary occlusion.

Daniels, Ralph Peabody * Toledo, Ohio, Rush Medical College, Chicago, 1899, on the staff of the Toledo Hospital, where he died April 19, aged 78, of acute coronary thrombosis.

Diamond, Joseph Solomon ✶ New York City, University and Bellevue Hospital Medical College, New York, 1906, specialist certified by the American Board of Internal Medicine, member of the National Gastroenterological Association and the Radiological Society of North America, past president of the Harlem Medical Association, on the staff of Sydenham Hospital died in Paris, France, April 29, aged 71, of coronary thrombosis

Didier, Frederick William ✶ Wheatland Calif, George Washington University School of Medicine, Washington, D C, 1904, formerly member of the state board of medical examiners, died recently, aged 79, of coronary occlusion

Eaves, Benjamin F ✶ Draketown, Ga, Atlanta Medical College, 1893, died in the Community Hospital, Villa Rica, April 1, aged 82, of diabetes mellitus

Engstrom, Fred Alonzo, Wanamingo, Minn, University of Minnesota College of Medicine and Surgery, Minneapolis, 1908, served during World War I died in the VA Hospital, St Cloud, April 8, aged 69, of lobar pneumonia

Filippo, La Faun Newton, Hodges, Ala, Medical College of Alabama, Mobile, 1904 died in Adrian, Mich, March 14, aged 72, of cerebral hemorrhage

Focht, Wilham Weinhold ✶ Lebanon, Pa, Jefferson Medical College of Philadelphia 1937, died suddenly, April 12, aged 41, of chronic myocardial degeneration

Foley, Fred Charles ✶ Newell, Iowa, Rush Medical College, Chicago, 1894, died in Mound Park Hospital, St Petersburg, Fla, March 4, aged 84, of influenza

Freeman, Thelma ✶ Birmingham, Mich, University of Michigan Medical School, Ann Arbor, 1924, served as president of the Blackwell branch of the American Medical Women's Association, for many years affiliated with the Woman's Hospital in Detroit, where she died March 23, aged 60, of cerebral hemorrhage

Futch, Thomas Allen Jr ✶ Thomasville, Ga, University of Georgia School of Medicine, Augusta, 1935, served during World War II, died March 20, aged 43

Gaumer, Herman Elmer ✶ Wilmington, Del, Hahnemann Medical College and Hospital of Philadelphia, 1936, served in the European theater of operations during World War II, affiliated with Delaware, Memorial, St Francis, and Wilmington General hospitals, died April 4, aged 42, of coronary occlusion

Gibbon, Robert Lardner, Charlotte, N C, Jefferson Medical College of Philadelphia, 1888, past president of the Mecklenburg County Medical Society, member of the founders group of the American Board of Surgery, affiliated with Mercy Hospital, Memorial Hospital, and Presbyterian Hospital, where he died March 27, aged 86, of congestive heart failure

Hannah, Ward ✶ Long Beach, Calif, Northwestern University Medical School, Chicago, 1911, served during World War I, affiliated with Seaside and Community hospitals, died March 22, aged 73

Harrington, George Leonard ✶ Kansas City, Mo, University of Kansas School of Medicine, Kansas City, Kan, 1908, associate professor of psychiatry and neurology at his alma mater, specialist certified by the American Board of Psychiatry and Neurology, member of the American Psychoanalytic Association and the American Psychiatric Association, on the staff of the University of Kansas Medical Center, Kansas City, Kan, died in Independence April 12, aged 67, of coronary thrombosis

Higa, James Tosuke, Chicago, College of Medical Evangelists, Loma Linda and Los Angeles, 1943, affiliated with Alexian Brothers Hospital, Cuneo Hospital, and the American Hospital, where he died April 29, aged 41, of cerebral hemorrhage

Humphreys, George Hoppin ✶ Jamaica, N Y, Columbia University College of Physicians and Surgeons, New York, 1908, an Associate Fellow of the American Medical Association retired health director of the public schools of Jamaica, on the staff of the Jamaica Hospital, died April 16, aged 76, of arteriosclerosis

Irvin, Isham Willard, Albany, Ga, Atlanta Medical College, 1914 served during World War I, died in Phoebe Putney Memorial Hospital April 25, aged 61, of acute myocardial infarction

Ivanoff, Stephen ✶ Stony Point, N Y, Long Island College of Medicine, Brooklyn, 1933, on the staff of the Nyack (N Y) Hospital, died March 20, aged 47, of rheumatic heart disease

Ives, Washington Mackey, Lake City, Fla, Vanderbilt University School of Medicine, Nashville, Tenn, 1901 past president of the Columbia County Medical Society, veteran of the Spanish American War, served on the staff of the Lake Shore Hospital, died March 30, aged 75, of a heart attack

Jones, Charles James ✶ Philadelphia, University of Pennsylvania Department of Medicine, Philadelphia, 1889, affiliated with St Joseph's, Lankenau, Wills, St Vincent's and German town hospitals, received an honorary LL.D degree from Villanova (Pa) College, died April 15, aged 86, of heart disease

Kimbrell, Earl Dewey ✶ Chicago, Northwestern University Medical School, Chicago, 1931, served with the Indian Service, died April 27, aged 52, of coronary occlusion

McComb, Fred Jackson, Wichita, Kan, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907, died in Wesley Hospital March 14, aged 74, of coronary thrombosis

McGuire, John P ✶ Clarksburg, W Va, University of Maryland School of Medicine, Baltimore, 1905, on the staff of St Mary's Hospital, died April 17, aged 79, of a heart attack

Mitchell, Edwin Waterman, Cincinnati, Medical College of Ohio, Cincinnati, 1882, professor emeritus of clinical medicine at University of Cincinnati College of Medicine, past president of the Cincinnati Academy of Medicine, for many years on the staff of the Cincinnati General Hospital and Christ Hospital, where he died April 20, aged 98

Parsons, Alfred Harrison ✶ Sayville, N Y, Long Island College Hospital, Brooklyn, 1905, an Associate Fellow of the American Medical Association, served during World War I, during World War II a member of the draft board in Great Neck, where he was for many years a school physician, at one time a director of the Nassau Hospital in Mineola, died May 3, aged 75, of cerebral hemorrhage

Picken, Mary Eleanor Stephenson, Orient, N Y, Woman's Medical College of Pennsylvania, Philadelphia, 1904, died in the Eastern Long Island Hospital, Greenport, Feb 23, aged 81, of arteriosclerosis and fracture of the left humerus

Plowitz, Paul Egon ✶ Elmira, N Y, Deutsche Universität Medizinische Fakultät, Prague, Austria, 1910, supervising psychiatrist at the Elmira Reformatory, affiliated with St Joseph's Hospital and Arnot Ogden Hospital, where he died March 8, aged 63, of metastatic carcinoma

Reutter, Garfield Arthur ✶ Rockport, Mo, Ensworth Medical College, St Joseph, 1911, died in the Lutheran Hospital, Omaha, Neb, March 24, aged 69, of cerebral hemorrhage

Robinson, Simon Frank ✶ Crane, Texas, Baylor University College of Medicine, Dallas, 1932, died March 13, aged 47, when his private plane crashed

Rosenberg, David Samuel ✶ Franklin, Neb, Creighton University School of Medicine, Omaha, 1934, served during World War II, affiliated with Mary Lanning Hospital in Hastings, died March 15, aged 42, of coronary thrombosis

Scharlock, Theodore M, Charleston, S C, Medical College of the State of South Carolina, Charleston, 1897, on the staffs of St Francis Xavier Infirmary, Roper Hospital, and Baker Memorial Sanatorium, physician at the city jail for more than 30 years, died March 15, aged 77, of carcinoma

Sellers, Galen Krauth ✶ Dassel, Minn, University of Illinois College of Medicine, Chicago, 1929, served during World War I, died April 18, aged 56

Smith, James Dismukes ✶ Kansas City, Mo, St Louis University School of Medicine, 1925, died April 26, aged 53, of hemorrhage complicating a duodenal ulcer

FOREIGN LETTERS

CHILE

Meeting of Lucas Sierra Foundation—The sixth clinical meeting of the Lucas Sierra Foundation was held in December, 1952, in Vina del Mar. Panel discussions on use of antibiotics in pediatrics, obesity, treatment of eclampsia, diseases of the spleen, and chronic nephritis were featured.

Obesity—The causes of obesity were discussed by Prof Armas Cruz and Drs F Donoso and A Jadresic. The authors described 180 patients who were considered obese because they weighed 20% or more than the standard weight for their sex and age. Of this group, 147 were women and 33 men. They were between 4½ and 66 years of age. The authors pointed out that when they started their work on obesity, they were inclined to classify obesity as exogenous or endogenous. As data were collected, however, they saw that it was not so easy to make clear-cut distinctions, no single theory explained all types of obesity. The law of conservation of energy can be applied in all cases, and therefore in obesity there is always a greater intake of food than the body needs. The question is whether this is the cause or the consequence of the pathological condition. In this resides the difference between endogenous and exogenous obesity. Exogenous obesity is more frequent when a great number of cases are studied, however, in every case all the multiple factors of endogenous and exogenous obesity must be analyzed, with metabolic, endocrine, constitutional, and purely exogenous factors taken into consideration. These investigators are inclined to believe that the most important factor in obesity is the exogenous factor, which is due to an increase of food intake and is produced either by bad habits of eating or by mental depression or psychic tension. The next most important factor is the endogenous mechanism, which depends on constitutional and hereditary conditions that act as predisposing factors.

The endocrine factors in obesity were analyzed by Dr A Atria and associates in 832 cases, 72% of the patients being women and 28% men. Obesity occurred most frequently in men around the age of 20 years and in women around the age of 40. In most women the onset of the obesity was associated with changes in ovarian function, such as that associated with the menarche, the menopause, pregnancy, or marriage, and frequently with changes in the menstrual cycle. A great intake of food and decrease of physical activity were also noted in these cases. In nearly 50% of the cases there was a familial tendency towards obesity and in 11% of the 832 cases there was also a familial history of diabetes. Dr Atria and his co-workers made a clinical diagnosis of simple obesity in 186 cases, with disorders of the hypothalamus and hypophysis implicated in 180 cases. They considered thyroid dysfunction responsible in 360 cases, of which 330 were due to hypofunction. Diabetes was present in 23 cases. Ovarian dysfunction was responsible for 230 cases, and testicular disorders (atrophy, cryptorchism, gynecomasty, and the male climacteric) were factors in 32 cases. Thus, according to these authors, endocrine factors were the causes in two-thirds of these cases, whereas the exogenous factor was responsible in only one third. Generally speaking, the most frequent endocrine disorder is hypothyroidism (50%), followed by the adiposogenital syndrome (25%). In men, however, the principal cause is the adiposogenital syndrome, followed by exogenous factors, and then by hypothyroidism. In women the main cause is thyroid deficiency, followed by exogenous factors, and then gonadal insufficiency as the third most frequent cause. The endocrine glands influence development of obesity by various mechanisms, including effects on food intake and physical activity and regulation of the metabolism.

Prof I Matte read a paper on the psychological aspects of obesity. If the patients are studied who are obese because of excessive food intake, it can be seen that the excess food

intake is basically an attempt at compensation for frustration. He states that psychoanalytic studies have revealed conflicts related to the oral stage of development in these patients. Together with the mother's milk, the infant receives love, and the patient who eats excessively tries to overcome nervous tension by overeating and thus regaining the feeling of being protected by the parent.

Other disorders associated with obesity were studied by Prof O Avendano in a total of 61 patients. The cardiovascular system was studied by means of electrocardiography, angiocardiology, measurement of the venous blood pressure, the velocity of circulation, and the blood volume (with Evans blue dye) and calculation of the minute volume (according to Remington's method). A complete history was obtained, and physical examination included study of the respiratory system, with measurement of the pulmonary ventilation and vital capacity. The endocrine system was studied to determine the function of the thyroid, ovaries, pancreas, etc. The osteoarticular system was studied by means of roentgenographic examination of the dorsolumbar spine, hip joints, knees, and feet. A roentgenogram of the skull and blood tests were made in all cases. Over 60% of the patients had a familial tendency towards obesity. In all cases there was an increase in food intake. Slightly more than 20% of the patients had biliary dyspepsia and 22% had bronchitis frequently. The blood urea level ranged from 50 to 95 mg per 100 cc in 31.5% of all the patients. High values for blood uric acid were found in 50%. Potassium deficiency was present in 56% and sodium deficiency in 51%. The erythrocyte-plasma chloride ratio was high in 35%, and the blood glucose level was above normal in 24% of patients. Hypercholesterolemia was found in 84%. The basal metabolism was normal in 30% and low in 70%. Study of the cardiovascular system revealed that 13 patients had hypertension. Over 50% had cardiac palpitations that were related to effort. The venous pressure, circulatory velocity, blood volume and minute output were normal in all patients. The electrocardiogram indicated normal function except in the hypertensive patients, whose electrocardiograms showed left axis deviation. Only in hypertensive patients did the angiocardiology show an increase in left ventricular pressure, however, 10% of the patients had signs of atherosclerosis. No abnormalities of the respiratory tract were observed, although a slight decrease of pulmonary ventilation was noted. Signs of ovarian insufficiency were noted in 69% of the women. The roentgenographic study showed some signs of arthrosis in 45%. The hemopoietic system as shown by the hemogram was normal in all patients.

The use of drugs to depress the appetite was studied by Drs G Rojas and H Diaz de Valdes in 278 cases. Their observations can be summarized as follows. The sulfate and tartrate salts of *d*-amphetamine were well tolerated, with intolerance for the sulfate evident in 23% of cases and for the tartrate in 3.1%. The drugs make adherence to a low calory diet less difficult, the appetite was decreased in more than 80% of the patients and slightly decreased in 10%. No increase of the intracranial or blood pressure was noted, and no patient suffered from insomnia. The discussion on obesity was concluded by a paper on surgery in obese persons by Prof R Urzua and co-workers.

Diseases of the Spleen—The discussion on pathological conditions of the spleen was opened by Prof E Egana and Drs A Rivadeneira and V Bejar, who read a paper on the functional morphology and physiopathology of the spleen. The role of the spleen as a reservoir is of great importance, and the autotransfusion that results when the spleen contracts following blood loss is well known. The spleen contains more red blood cells per gram than any other organ of the body, the hematocrit level being 82%. The authors consider destruction of the red blood cells to result from two factors: (1) the high lysolecithin content of the spleen and (2) stagnation of the red cells in the spleen. As an integral part of the

reticuloendothelial system, the spleen produces monocytes and plays a large role in phagocytosis. By hormonal regulatory mechanisms the spleen controls the maturation processes in the hematopoietic system and the delivery of blood cells to the peripheral circulation. To regulate production by the bone marrow, the spleen 'kidnaps' cells from the peripheral system. It is well known that the bone marrow requires certain enzymes, vitamins, and other materials for production of blood cells. The spleen requires the same substances for its own metabolism and competes with the bone marrow for them. Studies in the laboratory of experimental medicine have shown that splenectomy is followed by an increase in the level of circulating prothrombin. The spleen participates in the metabolism of iron as a member of the reticuloendothelial system. Warburg has shown that the spleen consumes such substances as glucose and glutamic acid and is active metabolically. It has a respiratory quotient of 0.92. Apparently the spleen does not require fats. Its glutamic acid content is comparable only with that of the brain. The spleen also contains glucuronidase, an enzyme that participates in disintoxication processes. The importance of the spleen in the body's defense against tumors, as an endocrine gland, and in Selye's general adaptation syndrome was also studied by the authors. Finally, the concept of hypersplenism was discussed, with the authors pointing out that there are two forms of hypersplenism: one that affects only red blood cells (hemolytic variety) and another that affects all blood cells (hemocytopenic variety). Splenectomy cures hypersplenism because it eliminates an endocrine inhibitory mechanism, because it removes an organ that destroys too many blood cells, or because it eliminates a tissue that competes with bone marrow for the same metabolites.

Emergency surgery of the spleen was discussed by Prof. R. Vargas and his co-workers. They described 88 cases, in which 82% of the patients were men, 84% of the patients were from 11 to 40 years of age. In 47 cases the surgery was necessary because of contusion, in 16 cases because of thoracoabdominal conditions, and in 31 because of abdominal conditions. Stab wounds were responsible for 28 cases and bullet wounds for 11 cases. Spontaneous rupture occurred in two cases. In 49 cases there were traumatic lesions, which were multiple in 14.2% and single in 85%. Complete rupture was present in 38 cases. General signs of splenic injury were anemia in 80% of cases, shock in 50%, abdominal pain in 74%, and muscular spasm in 60%. In 60% of the cases the patients were admitted to the emergency service in less than half an hour following injury, and in only 4% were they seen more than 24 hours later. The various types of surgical procedures employed were discussed. Generally speaking, before 1940 the mortality in such cases was 40% but since 1940 it has decreased to 23%.

Chronic Nephritis—Dr. H. Apablaza and Prof. C. Espildora discussed the fifth subject of the meeting, chronic nephritis. They emphasized the ophthalmoscopic findings in such conditions.

Postgraduate School Created—In August, 1952, the faculty of medicine of the University of Chile created the department of postgraduate medicine. Through this department the faculty intends to participate in three types of activity: (1) offering of courses for physicians practicing in Santiago and in the provinces, (2) granting of specialty degrees, and (3) establishment of scholarships for study abroad.

At the time of writing postgraduate courses were being held in Santiago, Valparaíso, Vina del Mar, Antofagasta, Talca, and Temuco; they were designed to combine practical with theoretical study and have been adapted to the needs of physicians in each locale. Thus in Santiago the courses continue for one month without interruption, in Valparaíso and Vina del Mar they are held on week ends, and in the other places they last for three or four weeks but are not in session continuously. Eighteen courses were in progress, 2 in Santiago, 3 in Valparaíso, and 12 in the rest of the country, on such topics as tuberculosis, pediatrics, psychosomatic medicine, general medicine, and general surgery. More than 100 persons are on the teaching staffs.

The faculty of medicine does not intend to foster development of superspecialists by its granting of specialty degrees; degrees will be granted in the fields of internal medicine, neurology, psychiatry, pediatrics, obstetrics and gynecology, and general surgery. In addition, specialization in public health, rehabilitation, and cancerology will be encouraged.

Under this program staff members of the university may be sent abroad. Visits of foreign lecturers to Chile for periods of not less than three months will be sponsored.

ITALY

Society of Cardiology.—Ballistocardiography in Mitral Stenosis—At a meeting of the Italian Society of Cardiology of the Latium region Nov. 26, 1952, Professors Collicelli and Puddu, from the University of Rome, read a paper on the modifications in the ballistocardiograms of patients with mitral stenosis following commissurotomy. The tracings were made according to the Dock and Taubman technique with the sphygmopiezoelectric transmission of Puddu. Although an exact tracing can not be obtained with this method, the sensitivity is uniform and the structure as well as the relative amplitude of the waves can be studied.

Observations in a large group of patients with rheumatic valve lesions revealed that usually in pure mitral stenosis the wave amplitude in the ballistocardiogram is reduced. In mitral stenosis associated with mitral insufficiency and/or aortic insufficiency, the amplitude is greater owing to the presence of the associated lesion and the increase seems to be proportional to the extent of the lesion. Professor Valdani, a pathologist and surgeon from the University of Rome, performed commissurotomy in 16 patients and the ballistocardiograms made several different times (from 15 to 30 days postoperatively) gave interesting data. In three patients with pure mitral stenosis the ballistocardiogram remained unchanged, despite the disappearance or decrease of the apical diastolic friction sound. In 13 patients with mitral stenosis, in 4 of whom it was associated with a mild aortic insufficiency, the amplitude of the postoperative ballistocardiogram was much greater than in the preoperative tracing. In all of these patients the diastolic apical friction sound had disappeared or was significantly diminished after the intervention, in three of them a systolic puff due to mitral insufficiency had appeared. According to Professors Collicelli and Puddu, the changes in the ballistocardiograms may be correlated with the increased systolic output that the surgical intervention causes in patients with mitral stenosis.

Trilogy of Fallot—Professor Provenzale, from Rome, discussed the trilogy of Fallot. Valvotomy was performed in 12 of his 20 patients. Section-dilatation of the infundibulum was performed in one, and Blalock's anastomosis in one. Four patients refused surgical intervention, the operation was contraindicated in one adult with a mild form, and one patient died in the hospital while waiting to undergo the operation.

The symptomatology of the trilogy of Fallot depends on two factors, the width of the interatrial communication and the extent of the pulmonary stenosis. The smaller the communication, the more the symptomatology resembles that of pure pulmonary stenosis and the less the malformation is tolerated. The greater the interatrial communication, the more pronounced is the cyanosis but the better the anomaly is tolerated. For these reasons and the consequent hemodynamic variations, the symptomatology varies. Essentially, however, the symptomatology consists of cyanosis, functional deficiency, and dyspnea. When dyspnea is present, it is more prominent than the other symptoms. There is also a constant harsh and jarring pulmonary puff. Often there is a delayed development, clubbed fingers, and hepatomegaly.

The criteria for diagnosis are clear lung fields, displacement of the aortic arch to the left, and, in general, absence of other malformations of the vessels and the heart. The pulmonary artery is dilated in most cases, the electrocardiogram shows right axis deviation. Catheterization permits penetration into the left atrium through the defect in the septum and reveals a right ventricular pressure that is significantly higher than

the systemic arterial pressure. Excellent angiocardigraphic diagnostic criteria have been reported by Teramo and Provenzale.

Differentiation from cyanotic heart disease, in which the pulmonary areas are congested, and from tricuspid atresia, which is characterized by left electrocardiographic prevalence, is easy. The differential diagnosis from the tetralogy and the pentalogy of Fallot is not difficult for the forms of the trilogies without cyanosis and with severe dyspnea. It is difficult, however, for the other forms of the trilogies when there are no anomalies of the vessels and the aortic arch is to the left or when the interventricular communication is decreased in size in cases in which the aortic arch is slightly to the right.

In the pentalogy of Fallot the diagnosis is more difficult because of the interatrial communication, which is usually narrow, and the position of the aortic arch slightly to the right. In such cases differential diagnosis preoperatively is impossible. The Condorelli-Turchetti test may perhaps reveal whether there is an interventricular septal defect.

Professor Provenzale discussed some cases of the tetralogy and pentalogy of Fallot in which a wrong diagnosis had been made and analyzed the causes of the mistake. An exact diagnosis is important because in patients with the trilogies the stenosis is always valvular and therefore amenable to valvotomy. In patients with the tetralogy of Fallot, however, the stenosis is almost always "subvalvular" and infundibular, a condition for which the operation has a high mortality rate.

In the trilogies with valvular stenosis, valvotomy is well tolerated, and the results are very good. Of 12 patients operated on by Professor Provenzale, only one died and most of the others recovered fully. The return to normal is progressive, it is slightly noticeable immediately postoperatively and becomes more evident after a few days, cyanosis disappears within a few months, and normal function is restored within four to five months. The systolic puff is modified but persists, and signs of valvular insufficiency do not appear.

Tuberculous Meningitis in Adults.—Professor Alessio reported on the results obtained with modern treatment of tuberculous meningitis in adults and elderly persons at a meeting of the Medical Society of Mantua that was held on Dec. 13, 1952, and of which he was the chairman.

Results in such cases are becoming more and more satisfactory, he attributes these favorable effects to the technique of the treatment, which is prolonged, to early initiation of treatment, and to better availability of streptomycin. Therapy must be prolonged for seven or eight months, with the proper doses of streptomycin combined with *p*-aminosalicylic acid orally or intravenously, and with vitamin A, vitamin D, and chaulmoogra oil. The use of streptokinase for intraspinal fibrinolysis had to be discontinued in some cases because of the pain produced in the vertebral column.

On the basis of the generally accepted concept that after antibiotic treatment a new disease becomes evident, Professor Alessio distinguishes four phases in this disease. The first phase is characterized by the quick appearance of the symptoms in the sensory system, the second, which is longer, is marked by the cessation of the irritating symptoms, the third phase, which lasts several months, is characterized by persistence of only one symptom (either elevated temperature, headache, or vomiting), by a decrease of albumin in the spinal fluid and of the lymphocytosis, and by an increase of sugar in the spinal fluid, the fourth phase, which may be the longest, is distinguished mainly by abnormalities of the spinal fluid. This classification into phases must be understood only as an arbitrary scheme, since one phase may overlap another. According to Professor Alessio, the prognosis is more favorable in women than in men.

At the same meeting Professor Ferran discussed the anatomic findings in cases of tuberculous meningitis treated with streptomycin. He reviewed the classical anatomic and pathological picture of tuberculous meningitis and then explained the many aspects that are seen today in dissecting bodies of patients who died during or after streptomycin therapy. The prolongation of the disease process has resulted in new forms of meningitis, such as meningoencephalitis and chronic tuberculous ependymitis, that were previously unknown.

The complete anatomic recovery from tuberculous meningitis after streptomycin therapy has been demonstrated at autopsy. This recovery has been reported by some authors in persons who had had tuberculous meningitis and died of some other cause. Therefore it can be said today that after streptomycin therapy some patients with tuberculous leptomeningitis recover with no marked sequelae.

Abnormal Physiology of Thyroid Gland.—At the January meeting of the Rome Medical Academy, Professor Vannotti, director of the University of Lausanne Medical Clinic, discussed abnormal physiology of the thyroid gland as studied by means of radioactive iodine. He emphasized the great progress made in this field since the introduction of radioactive iodine, which was used for the first time in experimental animals by American authors in 1939 and in man in 1945. Like physiological iodine, this substance diffuses throughout the organism into which it is introduced, but it has the advantage that its diffusion can be followed and checked by means of photographs, radiographs, and Geiger counters.

The modern techniques that are used to check the amounts of radioactive iodine in the blood and tissues (this is possible because of the clearness with which the radioactive iodine appears in pictures of histological specimens) make it possible to follow almost completely the metabolism of iodine. When iodine is introduced into the organism, it passes rapidly into the blood and then gradually becomes fixed in the thyroid and is partly eliminated through the kidney and the liver. From 40 to 60% of orally administered iodine is eliminated in 24 hours through the kidney, and 20% is eliminated slowly through the bile and intestine.

The quantity of iodine that is fixed by the thyroid and the rapidity of this process are proportional to the function of the gland, which normally fixes about 20% in 24 hours, in persons with hyperthyroidism as much as 40% can be fixed in 6 hours. The fixation of iodine in the blood also is proportional to the function of the thyroid gland, the blood fixes 10 to 15 μ g per 100 cc. in healthy persons, 22 to 25 μ g in persons with hyperthyroidism, and less than 4 μ g in persons with hypothyroidism.

It was found that only part of the iodine remains inorganic in the blood, whereas most of it becomes attached to proteins. When the iodine reaches the thyroid gland, it enters its cells and unites with a specific protein—thyroglobulin—which is found in the cells of the gland and does not exist in the blood. These phenomena of cellular fixation were very evident in films of histological specimens that Professor Vannotti showed.

By these methods it was seen that there are some thyroid follicles in which the iodine is metabolized from hematic thyroglobulin to diiodotyrosine and to thyroxine, other follicles do not participate in the formation of thyroxine. The fixation of iodine in tumors and the passage of thyroxine from the thyroid colloid to the blood were also checked. In the blood, thyroxine becomes fixed to proteins, mainly to globulins and to alpha globulins, and microphotographs show that iodine is found in the circulation as inorganic iodine, thyroxine, and triiodothyronine, which is a product of thyroxine degeneration. It was proved that it is not found under the form of diiodotyrosine, as had been believed, and that thyroglobulin is a specific protein of the thyroid and is never present in the blood.

Professor Vannotti discussed some results obtained in his clinic by various techniques in normal persons and persons with hypothyroidism and hyperthyroidism even in the presence of thiocyanate or thiouracil products, which are substances that inhibit the thyroid function.

There are limitations to modern techniques of study of the thyroid by means of radioactive iodine, and many conditions outside of the thyroid may lead to discrepancies. But, as Professor Vannotti said in his conclusion, a true thyroid "clearance" can today be determined by means of radioactive iodine and it is hoped that new contributions will be made in this modern field of medical science.

Arteriography of Abdominal Aorta.—Professors Baldrati and Possati, from the University of Bologna, read a paper on arteriography of the abdominal aorta at the meeting of the medical and surgical society of the Romagna region in Faenza Oct. 26, 1952, under the chairmanship of Professor Sighinolfi.

They pointed out contraindications for this investigation. Complications can be avoided by means of proper technical precautions and adequate preparation of the patient. They reported on their personal experience and showed a motion picture of numerous radiograms made at the University of Bologna Institute of Surgical Pathology. The main indications for aortography are obliterative diseases of the arteries, arteriovenous aneurysms and fistulas, embolisms of the abdominal aorta, Leriche's syndrome, and dystrophy of Fontaine. Retrograde aortography should be limited to the study of aortic aneurysms only.

The speakers concluded that arteriography of the abdominal aorta is sometimes an indispensable means of solving important diagnostic problems and selecting the best therapy, it can be carried out easily in any hospital. It should be limited, however, to selected cases and used only when other simpler methods have not given all the information necessary for good treatment of the patient.

PARIS

Method for Measurement of Left Auricular Pressure—Facquet, Lemoine, Alhomme, and Lefebvre have used the trans-bronchial route for measurement of the left auricular pressure, which has previously been impossible. The method is as follows. A bronchoscope is placed in position, and an aspiration rod with a special slightly bent forward needle soldered to its extremity is set in its lumen. The bronchial wall and then the auricular wall are pierced. The rod, irrigated with physiological serum, is connected to a manometer on which pressures are recorded. In *Archives des maladies de coeur et des vaisseaux* for August, 1952, pages 741-745, they described observations made on 10 patients. The method requires delicate technique but is harmless, the mucosa remained intact, and no hemorrhages or infection occurred, thanks to local and systemic use of antibiotics. Failure in four cases was due to obturation of the needle. In five patients with mitral deficiency, the authors noted pressure values corresponding to those found with open thorax. This new method, which is still in the experimental stage, may permit new methods for investigation of abnormalities of the mitral valve.

Cerebral Lesions Due to Anoxemia in Respiratory Paralysis—In the *Revue de neurologie* Professors Alajouanine, Bertrand, Castaigne, Gruner, and Pecker published the results of autopsy studies in 12 cases of acute anterior poliomyelitis, one case of polyradiculoneuritis, and one case of ascending paralysis. Ten of the patients spent some time in an iron lung. The authors noted that, in all cases of acute anterior poliomyelitis, there was some leptomeningitis, and diffuse vascular congestion as well as inflammatory lesions of the perivascular infiltration type. Vasodilatation of variable degree, often accompanied by perivascular hemorrhage, was usually observed. Lesions due to anoxemia were present in nine cases in the horn of Ammon, motor cortex, pallidum, putamen, occipital pole, and insular cortex. According to the authors, the extent of the lesions depends on the duration of anoxemia. Anoxemia of less than 20 days' duration produces lesions in 42% of cases, if it is present for more than 20 days, lesions occur in all cases. In most of the cases degenerative lesions reached the cortex and inflammatory lesions did not progress beyond the mesencephalon. From the clinical point of view, there is a great difference between the frequency of autopsy findings of such lesions and the small incidence of clinical syndromes. Only 4 of 14 patients experienced psychic disorders or disorders of consciousness.

Society for Ophthalmology—Cortisone—Guy Offret (Paris) reported to the Society for Ophthalmology a study of the use of cortisone in 200 cases over a one and one half year period. According to Offret, cortisone produces remarkable results in the treatment of syphilitic interstitial keratitis before vascularization has occurred. It is also effective in vernal conjunctivitis but has no effect in scleritis and episcleritis, it is harmful in trachoma. It is very effective in keratitis disciformis and

in virus keratitis provided the virus is no longer active. In keratitis due to the commoner organisms, relapses were noted. It is not very effective in severe ulcers or in trophic keratitis. Gougerot and Sjogren's ocular syndromes respond well to cortisone. Recent vascularization processes of the cornea and ocular burns are favorably influenced by local treatment with cortisone. Cortisone treatment is very effective in sympathetic ophthalmia. Except in serous central chorioretinitis, neuritis and ophthalmia atrophica, retinal alterations are modified little by cortisone.

Surgery in Glaucoma—E. Redslob (Strasbourg) brought up the disputed question of surgical intervention in chronic glaucoma simplex. He emphasized that some ophthalmologists are in the habit of operating on every patient whose intraocular pressure reaches or slightly exceeds 30 mg. Hg even though the function of the eye is unimpaired and the fundus is normal. According to the author, ocular pressure normally ranges from 12 to 35 mg and should be considered abnormal only when the pressure greatly exceeds 35 mg. The assumption that by reduction of the intraocular pressure atrophy of the optic nerve and excavation of the papilla can be prevented does not always prove to be correct, the pathogenesis of glaucoma simplex being still obscure. The author stated that, with Magi, he believes that disorders of intraocular circulation are due to disturbance of thalamic and hypothalamic centers. Even if decompressive operations may favorably influence circulation, they are always mutilating. As complications, the author cited the appearance of a central scotoma and an alarming diminution of central vision. He did not repudiate the often absolute necessity of surgical intervention, but advocated prolonged observation in every case of glaucoma and, above all, lengthy check of the effectiveness of miotics in variable doses. The author observed for 10 years the action of pilocarpine and found that neither the field of vision nor the acuteness of central vision was modified.

Ocular Implants—P. Bardelli (Metz) studied the action of various ocular implants. He noted that in treatment of myopia and retinitis pigmentosa, the use of implants from persons with the same condition gave the best results.

Surgical Treatment of Primary Bronchial Cancer—Sauvage, Le Brigand, and Merlier reported to the association of the Paris hospitals Sept 12, 1952, on the 144 operations they have done for primary bronchial cancer since 1948. In 53 cases exploratory thoracotomy was done and in 91 excision was done. The authors said that 40% of clinically detected cases were inoperable and that in 40% of those in which surgery was done the tumor could not be removed. This is due to a delay in the detection of cancer. According to the authors, cytological examination of material obtained by bronchoaspiration never gave accurate results. Even exploratory thoracotomy does not always permit recognition and delimitation of a tumor and even some biopsy specimens are of no value, as they are not always taken from the tumor or the invaded lymph nodes. Criteria for the choice of x-ray or surgical treatment were discussed. Only 5 of 261 patients treated with x-rays alone from 1946 to 1949 were living in 1949 in spite of the disappearance of cancerous tissues in several cases as confirmed by second operations or by autopsies. The authors reported on the operative mortality of excision: 3 of 15 operated on in 1948 and 1949 (20%), 5 of 21 operated on in 1950 (18%), 2 of 29 operated on in 1951 (7%). There were no deaths among patients operated on in 1952. This improvement of immediate results is due to improvement in surgical technique.

Demography—The department of statistics reported that the population of France increased from 40,300,000 in 1949 to 42,500,000 in 1952. The death rate decreased to 12.3 per 1,000 inhabitants. After a constant increase in the marriage rate following the liberation, there was a slight decrease from 32,000 in 1951 to 31,300 in 1952, the number of births also fell from 823,000 in 1951 to 820,000 in 1952. Moreover, in 1952 there was an excess of 290,000 births over deaths, in 1938 the deaths exceeded births by 6,000. There has been therefore a slight replenishment of the French population.

CORRESPONDENCE

CHLOROPHYLL AS A DEODORANT

To the Editor—I have recently seen an article in a professional journal on chlorophyllin products that seems to me to contain misleading and unreliable information. Some of this information pertains to advertising and can be used for the promotion of marketed preparations.

First of all, the material sold as chlorophyll is not chlorophyll at all and does not even merit the name chlorophyllin. Chlorophyll is a complex molecule containing the three important portions: (1) the group of four pyrrole rings, (2) the side-chains esterified with phytol and methyl alcohol, (3) the magnesium atom in the center. On treatment with alkali, the phytol and methyl alcohol are removed, and the remaining salt of the free acid is called a chlorophyllin. On subsequent treatment with acid, the magnesium is removed and the residue is called a pheophorbide. If the magnesium is removed first, the residue is a pheophytin. The pheophytins are olive brown but become green when a molecule of copper or nickel is added. To the best of my knowledge, the commercial preparations are copper or nickel pheophytins or pheophorbides. In the article in question, the term "complex processing" merely refers to this successive treatment with alkali, acid, and a metal salt. This is far from complex and only gives a false impression of difficulties in manufacture.

I understand that most of the commercial products involve the use of one group of patents. I am not familiar with the wording of these patents, but if, as I believe, they refer only to the preparation of water-soluble materials from chlorophyll, I must point out that these reactions were studied early in the 20th century by Schlunk and Marchlewski and by Willstätter. A particularly full account is given in Willstätter's "Untersuchungen über Chlorophyll," which was translated into English by Schertz and Merz and published in 1928. To my knowledge, the American Chlorophyll Company has been producing water-soluble pheophytin preparations for more than 10 years.

It is important to insist on the correct use of names because the word chlorophyll, or even chlorophyllin, gives a false impression to the public. Most persons associate the virtues of these prepared chlorophyll products with the known efficiency of chlorophyll in carrying out photosynthesis. This material is not chlorophyll, and, even if it were chlorophyll, it would not be in a state of biological activity. Chlorophyll, as it occurs in the leaf, is combined with proteins in the chloroplast, and it is only in that form that it is photosynthetically active.

By far the most misleading part of the article is the reference to tests that are supposed to have proved chlorophyll effective in deodorizing and in large numbers of other activities. The status of these tests is extremely doubtful. In the first place, it is hardly necessary to point out that the quantitative determination of the intensity of smell is a very difficult undertaking. As a rule, odors are compared by professional taste and odor experts who use a series of reference solutions that are made up in standard concentrations and that operate in as nearly as possible a reproducible way. It is quite out of the question to apply these procedures, rough and empirical as they are, to wounds and persons' breath or body odors. It follows that the so-called tests are very likely to be valueless. The publications in which I have seen descriptions of experiments of this sort make little or no mention of any precautions to obtain reliable data as to the intensities of the odors that they claim are removed. I have seen no reliable evidence to indicate the effectiveness of chlorophyll in any of the activities claimed for it.

It is true that I have by no means studied all of the literature dealing with the subject and that one can always draw a false impression from what is written. Let me say that I will be happy to withdraw any or all of the above statements if anyone can show me convincing evidence that chlorophyll acts as a deodorant or a cure for gingivitis or that it has any greater effect in promoting the growth of granulation tissue in

wounds than do a vast variety of other nonspecific materials. It is my impression that the public is being subjected to a racket of tremendous proportions and that the pharmaceutical industry is collaborating in this.

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FOREIGN PHYSICIANS AS INTERNS AND RESIDENTS IN THE UNITED STATES

To the Editor—The Health Resources Advisory Committee of the Office of Defense Mobilization has requested me to furnish you with the following notice to hospitals and to foreign physicians planning to take internships or residencies in the United States. We hope this notice may prevent some of the difficulties that have occurred in the past.

"The Health Resources Advisory Committee of the Office of Defense Mobilization has been concerned with the past confusion and uncertainty in connection with the possible obligation of foreign physicians under the Universal Military Training Service Act when such physicians enter the United States for the purpose of taking an internship or residency.

"The Director of the Visa Office of the State Department has furnished the following information which should be helpful to all concerned.

"Arrangements for the admission of foreign medical students (physicians) for hospital training as interns and resident physicians may currently be made in accordance with the exchange visitor regulations promulgated under the United States Information and Educational Exchange Act of 1948, as amended (Section 201). Persons who have entered the United States with the exchange-visitor visas issued under this section of the law are exempt from the necessity of registering for military training or service.

"This type of visa may be issued only to qualified persons who have been selected by sponsors of programs that have been designated as exchange-visitor programs by the Department of State. American consular offices abroad have been instructed to advise aliens who have been accepted for interns or residents by American Hospitals to have the hospital, if they have not already done so, apply to the International Education Service of the Department of State for designation of an exchange visitor program. Hospitals planning to use alien physicians might prevent present undue delay by applying for such designation well in advance of the time they plan to use such physicians.

Persons who enter the United States for medical training with immigrant visas may, if they so desire, depart from the United States and apply to an American consular officer abroad for an exchange-visitor visa with which to return to this country and complete their training. Such persons may, however, render themselves inadmissible into the United States under the provisions of Section 212(a) (22) of the Immigration and Nationality Act as persons who departed to avoid or evade training or service in the armed forces of the United States unless they are able to establish to the satisfaction of the consular officer issuing the visa and of the immigration inspector at their port of entry into the United States that they were classified as nonimmigrants at the time of their original admission into the United States, that they have not during their stay in this country committed any act indicating an abandonment of nonimmigrant status or an acceptance of permanent residence status, and that they were properly classifiable as nonimmigrants at the time of their departure as well as at the time of their applications for exchange visitor visas. It is also to be borne in mind that, if such persons have failed to report after being called for induction by their local Selective Service boards, they will be regarded as delinquent by the Selective Service authorities and may be subject to prosecu-

tion by those authorities regardless of their possible acquisition of exchange visitor status. In this connection medical trainees in this country in the status of permanent residence, who intend to depart from the United States, should be advised to so inform their local draft boards in order that they will not be called for service while outside of the United States and, by failing to report, become delinquent in their Selective Service responsibilities."

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Office of Defense Mobilization
Washington 25, D C

CANCER DIAGNOSIS

To the Editor—The letter by L Henry Garland in *THE JOURNAL*, May 2, 1953, page 75, admonishes directly only the American Cancer Society in the statement of the Cancer Commission of the California Medical Association. The American Cancer Society, thus, becomes the whipping boy for valid or imagined misconceptions about cancer detection, the fairness of this is open to question.

First, the statement of the Cancer Commission charges that the proponents of cancer detection examinations "frequently imply that a detection procedure is a technical or quasi lay procedure." I can think of no form of physical examination that is not a technical procedure, and I know of no position ever taken by the American Cancer Society that would classify any detection procedure as "quasi lay" or anything except what it should be, a medical procedure. Second, the Cancer Commission defines detection as the "effort to discover evidence of disease in persons both asymptomatic and symptomatic." This interpretation differs from that of the American Cancer Society in that the Society regards detection as the effort to discover evidence of disease in presumably well (asymptomatic) persons. It differs also from the interpretation of the American College of Surgeons which defines a detection center as a medical facility in which a supposedly well person can receive an examination for the purpose of discovering "silent" cancer. Further, it differs from the interpretation of detection accepted by the National Cancer Institute. Finally, it differs from the definition of detection held by numerous independent authors whose papers have appeared in the recent literature (H W Jones and W R Cameron, F C Yeomans, E E Clifton and B Rush, C MacFarlane, A G Moore, A H Wells, J F Hynes, J L Neff, E S L'Esperance, and J P A Latour, et al). Third, the Cancer Commission holds that "there is no distinction between diagnosis and detection when the objective of the procedure is the identification of health or disease." As noted above, this view is not general. On the contrary, the distinction that detection procedures are for presumably well persons, while diagnostic procedures are for those presenting evidence (signs and/or symptoms) suggesting diseases, is so logical and so simple that it has occasioned no serious disagreement heretofore. Fourth, the commission states, "detection is a part of diagnosis, and not some mechanical or technical process which can safely be relegated to lay persons." To my knowledge, the American Cancer Society has never affirmed any other position, and its policy clearly recognizes the essential character of professional control, supervision, and participation in detection and diagnostic practice.

The Cancer Commission correctly maintains that "Detection is a step toward diagnosis", this statement, however, points to the flaw in the commission's position and is at variance with its interpretation quoted before. If detection is a step toward diagnosis, how can there be no distinction between the two? To detect is to look for evidence of disease, to diagnose is to determine the precise nature of that evidence of disease. Diagnosis begins where detection ends. Detection procedures are rapid screening procedures applicable to large numbers of persons. Diagnostic procedures must always be painstaking, careful, thorough, and designed to fit the individual problem at hand.

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CERVICAL SYMPATHETIC BLOCK

To the Editor—In their article "The Evaluation of Stellate Ganglion Block for Acute Focal Cerebral Infarcts" (*J A M A* 151:438 [Feb 7] 1953), Millikan, Lundy, and Smith were unable to report any beneficial effects of stellate ganglion blocks in cases of acute cerebral vascular accidents as we did some years ago (*J A M A* 136:659 [March 6] 1948). Their study consisted of 27 patients in whom treatment included stellate ganglion blocks (we prefer the term cervical sympathetic block) and 60 in whom treatment was the same except that it did not include the blocks. They draw conclusions from a comparison of both groups. In their series, Millikan and associates not only obtained poor results but also observed that, in some of the patients who received blocks, the results were more unfavorable than in those who did not. We have treated a number of patients without any favorable result, but we cannot understand why there should ever be any unfavorable result. In no case of ours has the course of the hemiplegia been undesirably influenced.

A great deal of evidence has been adduced by others regarding the favorable effect of cervical sympathetic block in suitable cases. We do not consider a person in whom the spinal fluid is bloody suitable for this therapy. Even if good results were observed far less frequently than they are, they would still be of very considerable importance to the patient involved when they do occur. Since there has been so much positive evidence, generalizations should not be drawn from a few uninformative cases, unless they are very critically reviewed by the author and, most of all, by the reader. Depriving a patient of the possibility of immediate improvement or of shortening the course of the hemiplegia is serious, since a lack of results cannot possibly affect the patient's future course in any way. When the hemiplegic patient is completely or partly relieved in a matter of minutes, there is a sharp enough difference between that case and the case conventionally treated to make a doubtful series of controls superfluous.

The hemiplegic state involves the occurrence of many and diverse phenomena, the nature of which cannot always be determined clinically. We will not discuss the vasomotor influences in the cerebral blood flow, since they were discussed in our original contribution. The subject was also discussed by Hicks and Warren in 1951. It is probable that in a certain proportion of cases cerebral infarcts are on a purely vasomotor basis. Subintimal hemorrhages may also occur in the arteries of the cerebral cortex, just as they do elsewhere in the body. They may occlude the vessel by formation of a hematoma, or they may be the basis for a superimposed thrombosis as well as for angiospastic phenomena around the hemorrhage or elsewhere.

Because numerous inquiries have reached us during the last five years regarding our present attitude toward this controversial method of treatment, we wish to summarize our experience since 1948. Seventy-nine patients have been observed since our publication in 1948. Some of them were treated at home, and from some of them insufficient data have been obtained, so that we have 53 patients on whom accurate data are available. Twenty of these gave definite evidence of hemorrhage, three were given the diagnosis of brain tumor. This leaves 26 patients with so-called thrombosis and 4 in whom the clot was diagnosed as embolic in nature. Of the 30 patients who were given diagnoses of thrombosis or embolism and who were treated by sympathetic block, 10 obtained no appreciable relief, 9 obtained dubious relief from treatment, and 11 obtained definite and, occasionally, complete relief.

By definite improvement is meant an improvement in speech and motor power, a change in reflexes from flaccid to spastic, or the regaining of consciousness, if the patient had been unconscious. To validate our results, it was required that all of these phenomena occur within 10 to 30 minutes after the procaine injection and that they be coincident with the development of Horner's syndrome. The electroencephalogram may show marked improvement at the same time (de Takats, G., *Postgrad Med* 5:184 [March] 1949). We have said nothing about the influence of treatment on residual symptoms in such patients, since controls are obviously highly unsatisfactory. We are sure, however, that residual symptoms are very mark-

edly decreased. If a patient, who is in coma and who is aphasic, talks, sits up, and swallows liquids 10 minutes after a cervical sympathetic block, no statistics will convince us that the improvement is a coincidence.

Being clinicians, we cannot enter the discussion of the lack of results obtained by the nitrous oxide method of Kety. Even with that method, a decrease in vascular resistance has been reported after bilateral stellate ganglionectomy.

When the first procaine injection caused a favorable response, the injections were repeated for 5 to 10 days with or without a plastic tube in place, until the maximum amount of benefit had been obtained. In analyzing our results and those of others, some favorable and others unfavorable, our emphasis has always been on relief of the halo of vasoconstriction about the obstructed vessel and the possible relief of perifocal edema. Our aim was to accomplish, if possible, the same kind of sudden reduction of edema that occurs in a thrombophlebitic extremity after a paravertebral sympathetic block is performed.

It is difficult to explain the discrepancy between our findings and those of Millikan and his associates. Their material must have been vastly different from ours, since, in 60 patients used for control, only 4 lesions were reported as being due to hemorrhage, 53 were regarded as infarcts, and one as an embolus. In our previously reported series of 121 patients, 15 lesions were due to embolism, 53 to thrombosis, and 53 to hemorrhage. This ratio of thrombosis to hemorrhage was also seen in the classic study of Aring and Merritt reported in 1935. By hemorrhage we do not mean only the rupture of a larger artery, emphasis of this was adequately reduced by Scheinker in 1945. We mean hemorrhagic infarcts that may produce xanthochromic fluid four to five days after the insult. Their material must have further differed from ours in that only half the patients in whom hemiplegia developed over a period of 24 hours were still hemiplegic 14 days later. We seldom see such mild accidents and suspect that, in such patients, small, temporary circulatory deficiencies must have occurred.

We feel that cervical sympathetic block has not been followed by any harmful complications to the patient and that a few well selected patients seen and given injections in the first few hours show a moderate, but definite amount of benefit. In order for the cervical sympathetic block to be maximally effective, it must be done as an emergency measure. The point of this treatment is that relief should be expected only in the primarily infarctive lesion, with minimal progressive hemorrhage. Until such cases can be more precisely delineated, a number of patients will be given blocks without any certainty of benefit.

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IDIOPATHIC ADRENAL APOPLEXY

To the Editor—Spontaneous idiopathic bilateral adrenal apoplexy associated with hypertension may not be so rare as the medical literature seems to indicate, in fact, the recent article by R. C. Greene in *THE JOURNAL*, May 9, 1953, page 133, called attention to its existence. It seems to me that milder, possibly unilateral, apoplexy of nonfatal outcome is relatively common among hypertensive patients but that it passes undiagnosed. The following case illustrates my contention. A 58 year-old white woman, with rather marked "essential" hypertension for the past 12 years, showed arteriosclerotic hypertensive retinal changes, "left ventricular strain pattern" on the electrocardiogram, and a moderate outflow tract enlargement of the left ventricle for the nine years during which I have observed her. Her general condition was fairly well balanced and unchanged for the same nine years. Suddenly she felt very weak, as if fainting, became pale, and had cold sweats. Her blood pressure dropped to 130/80 mm. Hg, before that accident," it was usually 220/120 mm Hg. She was in a state of semicollapse for three days, thereafter, she gradually recovered. In this patient, there was neither clinical nor electrocardio-

graphic evidence of a coronary accident, a cerebrovascular accident, or any visible or invisible hemorrhage or infection, in fact there was no evidence of any obvious cause for that sudden, hypotensive episode.

In retrospect, it is logical to wonder if some cases of proved coronary insufficiency, thrombosis, or cerebrovascular accident are not the consequence rather than the cause of a sudden drop of a comparatively stable high arterial tension in persons having a miopragic arterial system in whom abrupt disturbance in hemodynamic status occurred because of spontaneous adrenal apoplexy. Curiously enough, in the last few weeks, this case was the second in which I observed such a clinical picture.

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GANGRENE FOLLOWING INTRA-ARTERIAL TRANSFUSION

To the Editor—In regard to the article entitled "Gangrene Following Intra Arterial Transfusion," by Blakemore, Dumke, and Rhoads, in *THE JOURNAL*, March 21, page 988, it should be pointed out that the technique of intra arterial transfusion employed by these workers is inherently hazardous and should be abandoned. It is unnecessary to ligate an artery being used for intra arterial transfusion purposes. It is natural that the application of a ligature will necessarily produce problems of gangrene as the authors indicate with reference to the anatomy of the hand.

Reference should be made to the article in *THE JOURNAL*, May 31, 1952, page 418, in which a technique is described that employs simply the introduction of a pencil point type needle or a Lindemann type needle into the exposed artery in a centripetal direction. This cannulization is performed just as if one were doing a venipuncture. A ligature may be placed about the vessel, provided the cannula is in place. The purpose of this ligature is obviously to secure the needle within the lumen of the artery. At the termination of the intra arterial transfusion, this ligature is, of course, cut.

After an intra arterial transfusion with this technique, one merely removes the needle and applies a gauze sponge with firm pressure against the vessel at the site of puncture. One or two mattress type sutures may be placed in the skin, and, after five minutes of firm pressure, the sponge can be removed and the skin then approximated. Further firm pressure is then applied, and, in our experience with the intra arterial transfusion as a planned routine procedure in patients expected to require large volumes of blood, we have seen neither gangrene nor subsequent hemorrhage from the arterial puncture site.

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To the Editor—We are in complete agreement with Dr. Collins that an artery should not be ligated when intra arterial infusion is done. In one of the two cases that we reported (*J A M A* 151:988 [March 21] 1953), the intra arterial infusion was given before the patient came to this hospital, and, in the other, the vessel was temporarily occluded, contrary to our usual technique. While we believe the technique of exposing the artery and introducing a needle or cannula into it without interrupting its continuity is the best technique, it remains to be seen whether or not it is always safe. It is not impossible for a vein to become occluded after venipuncture, and such an occlusion could conceivably occur in an artery also, especially if the needle were left in the vessel for a considerable time.

We did not realize that there was any ambiguity in our statement that every attempt should be made to preserve the continuity of the vessel and are grateful to Dr. Collins for reemphasizing this point.

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COUNCIL ON NATIONAL EMERGENCY MEDICAL SERVICE

MEDICAL CIVIL DEFENSE PREPAREDNESS

As a result of a survey of state medical associations and state civil defense officials, the Council on National Emergency Medical Service has prepared a revised report showing the status of medical civil defense preparedness. Following is a résumé of these data by states. More complete information can be secured by addressing a request to the Council at the American Medical Association headquarters.

C. JOSEPH STEITLER, Secretary

Résumé of Information by States Reflecting Status of Medical Civil Defense Preparedness as of June 1, 1953

State	Civil Defense Legis- lation	Civil Defense Staff			Appropriations		Medical Civil Defense Plan	Civil Defense Medical Assign- ments	Training Courses	Practice Drills	Medical Society Emer- gency Medical Services Com- mittees	Medical Civil Defense Manuals Articles Etc.
		Total	Director	Medical	Total	Medical						
Alabama	Yes	5	Yes	No	\$ 349 000	None	No	No	Unknown	Yes	Yes	No
Alaska	Yes	5	Yes	Yes	500 000	70 000	Yes	Yes	Yes	Yes	No	Yes
Arizona	Yes	6	Yes	Yes	299 400	None	Yes	Yes	Yes	Yes	Yes	Yes
Arkansas	No	2	No	No	None	None	Yes	—†	Yes	—	Yes	—
California	Yes	150	Yes	Yes	12,000 000	2 791 007	Yes	Yes	Yes	Yes	Yes	Yes
Colorado	Yes	30	Yes	Yes	40 000	None	Yes	Yes	No	Yes	Yes	Yes
Connecticut	Yes	20	Yes	Yes	1 021,294	808 903	Yes	Yes	No	No	Yes	Yes
Delaware	Yes	9	Yes	Yes	310 000	60 000	Yes	Yes	No	No	Yes	Yes
District of Columbia	Yes	3	Yes	Yes	100 000	None	Yes	Yes	—	Yes	Yes	Yes
Florida	Yes	11	Yes	Yes	97 000	None	Yes	Yes	Yes	Yes	Yes	—
Georgia	Yes	35	Yes	Yes	200 000	12 000	Yes	Yes	Yes	Yes	Yes	Yes
Hawaii	Yes	7	Yes	Yes	541,228	280 763	Yes	Yes	No	Yes	Yes	Yes
Idaho	Yes	34	Yes	Yes	10 000	None	Yes	Yes	Yes	No	No	No
Illinois*	Yes	20	Yes	Yes	100 000	2 566	Yes	No	—	Yes	Yes	No
Indiana*	Yes	7	Yes	Yes	640 000	58 145	Yes	Yes	Yes	Yes	Yes	Yes
Iowa	Yes	2	Yes	Yes	None	None	Yes	Yes	No	Yes	Yes	No
Kansas	Yes	5	Yes	Yes	1 180 000	97,649	Yes	Yes	No	No	Yes	No
Kentucky	Yes	15	Yes	Yes	59 440	13 000	—	Yes	No	No	Yes	No
Louisiana	Yes	23	Yes	No	160 000	No	Yes	Yes	No	Yes	Yes	No
Maine	Yes	44	Yes	Yes	260 000	None	Yes	Yes	Yes	Yes	Yes	Yes
Maryland	Yes	14	Yes	Yes	1 152 831	900 000	Yes	Yes	No	Yes	Yes	Yes
Massachusetts*	Yes	—	Yes	Yes	1 921,500	785 000	Yes	Yes	No	Yes	Yes	Yes
Michigan	Yes	48	Yes	Yes	270 575	715 000	Yes	Yes	Yes	Yes	Yes	Yes
Minnesota	Yes	13	Yes	Yes	247 575	None	Yes	Yes	No	Yes	Yes	No
Mississippi	Yes	3	Yes	—	20 000	—	Yes	Yes	—	Yes	Yes	Yes
Missouri	Yes	11	Yes	Yes	177,550	None	Yes	Yes	No	Yes	Yes	Yes
Montana	Yes	2	Yes	Yes	10,500	No	Yes	Yes	—	No	Yes	No
Nebraska	Yes	3	Yes	Yes	25 000	No	Yes	Yes	—	Yes	Yes	No
Nevada	Yes	2	Yes	Yes	24 704	No	Yes	No	No	No	Yes	No
New Hampshire	Yes	4	Yes	Yes	224 000	14 700	Yes	Yes	No	Yes	Yes	Yes
New Jersey	Yes	150	Yes	Yes	1 450 000	1 150 000	Yes	Yes	No	Yes	No	Yes
New Mexico	Yes	8	Yes	Yes	165 000	None	Yes	Yes	No	Yes	No	No
New York	Yes	10	Yes	Yes	1 600 000	328 750	Yes	Yes	Yes	Yes	Yes	Yes
North Carolina	Yes	4	Yes	No	185 000	30 000	Yes	Yes	No	No	Yes	No
North Dakota	Yes	—	Yes	No	525 000	None	—	Yes	No	Yes	Yes	Being prepared
Ohio	Yes	30	Yes	Yes	3 125 000	400 000	Yes	Yes	No	Yes	Yes	Yes
Oklahoma	Yes	5	Yes	Yes	250 000	16 000	Yes	Yes	No	Yes	Yes	No
Oregon	Yes	18	Yes	Yes	1,260 790	331 725	Yes	Yes	Yes	Yes	Yes	Yes
Pennsylvania	Yes	25	Yes	Yes	4 000 000	1 070 000	Yes	Yes	No	No	Yes	Yes
Rhode Island	Yes	6	Yes	Yes	102 000	17 234	No	Yes	—	Yes	Yes	No
South Carolina	Yes	4	Yes	Yes	14 492	No	No	Yes	No	Yes	Yes	No
South Dakota	Yes	4	Yes	Yes	90 000	None	Yes	Yes	No	Yes	Yes	No
Tennessee	Yes	—	Yes	Yes	988 700	210 771	Yes	Yes	No	No	Yes	Yes
Texas	Yes	—	Yes	—	537 000	—	—	Yes	—	Yes	Yes	—
Utah*	Yes	6	Yes	Yes	100 000	No	Yes	Yes	Yes	Yes	Yes	No
Vermont	Yes	3	Yes	Yes	22 500	None	Yes	Yes	No	Yes	Yes	No
Virginia	Yes	23	Yes	Yes	567 000	50 000	Yes	Yes	Yes	Yes	Yes	Yes
Washington	Yes	15	Yes	Yes	2 762 093	523 738	Yes	Yes	Yes	Yes	Yes	Yes
West Virginia	Yes	20	Yes	Yes	132,820	9 000	Yes	Yes	Yes	Yes	Yes	Yes
Wisconsin	Yes	6	Yes	Yes	1,500 000	290 000	Yes	Yes	Yes	Yes	Yes	Yes
Wyoming	Yes	—	Yes	Yes	100 000	As necessary	Yes	Yes	Yes	Yes	Yes	No

* Program set up for blood typing all residents

† When dashes appear data were unobtainable

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A M A Am J Diseases Children, Chicago

85 259 392 (March) 1953

- Purpura in Infants and Children Its Natural History D H Clement and L K Diamond—p 259
 Immaturity of Single Live Births According to Weight with Particular Reference to Race M A Taff Jr and C L Wilbar Jr—p 279
 Prenatal Closure of Interatrial Foramen J G Wilson R A Lyon and R Terry—p 285
 Treatment of Bacterial Meningitis of Unusual Etiology and Purulent Meningitis of Unknown Origin M H Lepper N H Blatt P F Wehrle and H W Spies—p 295
 Use of Aspiration Lung Puncture in Diagnosis of Idiopathic Pulmonary Hemosiderosis S S Gellis, J L D Reinhold and S Green—p 303
 *Neonatal Granuloma Venereum C W Scott D M Harper R S Jason and E B Helwig—p 308
 Hypervitaminosis A Review with Discussion of Vitamin A A G Knudson Jr and P E Rothman—p 316

Neonatal Granuloma Venereum.—An infant boy was admitted to the hospital with a diagnosis of acute suppurative otitis media. There was a large tender mass behind the right ear, and exudate came from the right external auditory canal. A perforation was visible in the tympanic membrane. Treatment with penicillin and sulfadiazine proved ineffective, and the abscess in the postauricular area had to be incised and drained. Culture of the drained material yielded *Staphylococcus aureus* and *Staph. albus*. Later ulcers developed at the umbilicus and the dorsum of the penis, and a lesion appeared on the forearm, which destroyed a large part of the shaft of the radius. This last lesion was treated with x rays, in the belief that it was either Ewing's sarcoma or tuberculosis, but it increased in size. Kahn and tuberculin tests repeatedly gave negative results. Microscopic examination of the lesions suggested lymphogranuloma venereum so treatment with stibophen USP (Fuadin) was instituted five months after the first admission of the infant. Four two-week courses of the drug were given, each followed by a treatment free interval of a week. The daily dose was 2 cc. Following the second course of stibophen, the lesion of the radius began to shrink. The postauricular, umbilical, and penile lesions definitely regressed, although they did not heal completely. About a month after treatment for lymphogranuloma venereum had begun, it was found that the woman who had pretended to be the infant's mother was not his mother, but that the true mother was in another hospital being treated for granuloma venereum. The recalcitrant postauricular, penile, and umbilical lesions of the infant later subsided following treatment with streptomycin. In the absence of positive demonstration of Donovan bodies from each site, it is impossible to state unequivocally that all of the lesions in this case were due to granuloma venereum. The simultaneousness of their appearance coupled with their uniform response to specific therapy, however, indicates a common etiological background. The authors believe that this is the first reported case of neonatal granuloma venereum. They point out, however, that granuloma venereum presents a definite hazard to pregnancy and delivery, other authors having reported five infant deaths in 14 deliveries of mothers with this disease.

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Titles marked with an asterisk (*) are abstracted.

A M A Arch Neurology and Psychiatry, Chicago

69 145 280 (Feb) 1953

- Quantitative Studies of Experimental Production and Treatment of Acute Closed Cerebral Injury G M Hass and C B Taylor—p 145
 Amyotrophic Lateral Sclerosis: Clinicoanatomic Study of Fifty Three Cases T Lawyer Jr and M G Netsky—p 171
 Group Therapy of Patients with Multiple Sclerosis Preliminary Report M Day E Dat and R Herrmann—p 193
 Progressive Bulbar Paralysis Showing Heredofamilial Incidence and Intellectual Impairment E E Robertson—p 197
 Hemangiomas of the Pons K Tellmann—p 208
 Aggression Guilt and Cataplexy M Levin—p 224
 Retraction Nystagmus and Retraction of Eyelids Due to Arteriovenous Aneurysm of Midbrain H Askenasy H Wilsenbeek and E Herzberger—p 236
 Bilateral Encapsulated Subdural Effusion Complicating Bacterial Meningitis in Infancy Report of Case with Review of Literature J A Epstein and S E Goldzler II—p 242

A M A Arch Pathology, Chicago

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- Histogenesis of Breast Tumors in Rats Receiving 2 Acetylaminofluorene R C Ross R F Scarf and S C Skoryna—p 173
 Polycerebrosides in Gaucher's Disease I Isolation Composition and Physical Properties L L Uzman—p 181
 Esophageal Varices Without Hepatic Cirrhosis N Garrett Jr and E A Gall—p 196
 Nature and Genesis of Pulmonary Alterations in Carbon Tetrachloride Poisoning W Umiker and J Pearce—p 203
 Bacterial Endocarditis Due to *Pseudomonas Aeruginosa* B A Walsbren and E V Hastings—p 218
 Pyloric Obstruction Due to Mucosal Diaphragm A N Rota—p 223
 Human Significance of Experimental Carcinogenesis P E Steiner—p 227
 Vertebral Column Methods for Removal Reconstruction and Gross Sectioning G Selin S Schlyen and H L Jaffe—p 245

American Heart Journal, St Louis

45 319-476 (March) 1953

- Relative Values of Techniques Used in Detection of Heart Disease E Phillips J M Chapman and L S Goerke—p 319
 Natural History and Course of Hypertension with Papilledema (Malignant Hypertension) M F Schottstaedt and M Sokolow—p 331
 Electrocardiographic Changes in Hypertension Treated by Methonium Compounds A E Doyle—p 363
 *Role of Pulmonary Stenosis in Production of Chronic Cyanosis A. Selzer and W H Carnes—p 382
 Aberrant Ventricular Conduction Simulating Paroxysmal Ventricular Tachycardia C P Stevenson F B Hine and H A Bradford—p 396
 *Transient Ventricular Fibrillation V The Effects of Oral Administration of Quinidine Sulphate on Patients with Transient Ventricular Fibrillation During Established Atrioventricular Dissociation S P Schwartz, M P Margolies and A Firenze—p 404
 Electrocardiographic Mirror Pattern Studies I Experimental Validity Tests of Dipole Hypothesis and Central Terminal Theory O H Schmitt, R B Levine and E Simonson—p 416
 Diagnosis of Infarction of Interventricular Septum. H L Osher and L. Wolf—p 429
 Clinical Studies on Parasystole P Mueller and B Baron—p 441
 Eccentricity as Cause for Difference Between Vectorcardiograms Registered by Cube and Tetrahedral Systems A I Schaffer P G Bergmann L J Boyd and others—p 448
 *Coarctation of Aorta in Three Members of Family R. R. Taylor and B E Pollock—p 470

Pulmonary Stenosis in Chronic Cyanosis.—The importance of pulmonary stenosis in the production of chronic anoxemia and cyanosis was studied in 132 cases of pulmonary stenosis collected from the literature. Of these patients, 69 had pure pulmonary stenosis with closed cardiac septums, 35 had pulmonary stenosis with patent foramen ovale, and 28 had the tetralogy of Fallot. Analysis of reported pathological, physiological and clinical observations in these 132 patients showed that there is a fundamental difference between pure pulmonary stenosis and that associated with intracardiac shunts. In the 69 patients with pulmonary stenosis with closed septums the oxygen saturation of arterial blood has been normal. Pure pulmonary stenosis not associated with an intracardiac com-

munication is a noncyanotic disease, while cyanosis was frequently mentioned in the cases of this type, it was almost always associated with chronic cardiac failure. No relationship was observed between the presence and severity of cyanosis and the degree of pulmonary stenosis, such as one would expect if the two conditions had a causal relationship to one another. It is concluded that anoxemia is not a feature of pure pulmonary stenosis and that stagnant cyanosis, if present, is probably related to heart failure and not directly attributable to pulmonary stenosis. Of the 35 patients with pulmonary stenosis with patent foramen ovale, 30 were reported to have had cyanosis and in 15 it was described as severe. Anoxemia and chronic cyanosis thus are almost always present in patients with this type of pulmonary stenosis and are due to a right-to-left shunt through the foramen ovale, which is caused by pressure changes resulting from the pulmonary stenosis. This was attested by the direct relationship between the degree of pulmonary stenosis and the severity of cyanosis on the one hand, and by the similarly close relationship between the size of the foramen ovale and the cyanosis on the other hand. Furthermore, catheterization data, angiocardiographic reports, and experimental studies support this concept. All evidence in the 28 patients with tetralogy of Fallot, 18 of whom were severely cyanotic during the terminal stage of the disease, indicated that in cases with a large ventricular septal defect the systemic circulation must be supported by an elevated resistance within the lesser circulation as a condition for survival. Pulmonary stenosis constitutes one of the available mechanisms for this adjustment, and is not the only important factor in the production of anoxemia and cyanosis. The different roles of pulmonary stenosis in its various forms in the production of chronic cyanosis are of definite practical importance in connection with the surgical approach to correction of cyanosis and anoxemia: the right-to-left shunt through the foramen ovale can be lessened or abolished by pulmonary valvulotomy, while in the tetralogy of Fallot a Blalock or Potts anastomosis appears to be a much safer approach to the problem but represents a purely palliative procedure. As a result of their observations in the three syndromes of pulmonary stenosis, the authors state that pulmonary stenosis can be regarded as the principal factor in chronic cyanosis only in the syndrome of pulmonary stenosis with patent foramen ovale.

Quinidine in Transient Ventricular Fibrillation.—The effects of the oral administration of quinidine sulfate were studied on three patients with transient ventricular fibrillation during established atrioventricular dissociation. Continuous electrocardiograms were obtained before, during, and subsequent to the administration of the drug. The drug was administered in graded doses (3 grains [0.2 gm.] at hourly intervals or a single dose of 6 grains [0.4 gm.] or 10 grains [0.67 gm.]), and it was determined that in the same doses its action was variable from patient to patient. The duration of its effects as judged by the alterations in the cardiac rhythms and the intensity of its action depended on the size of the dose. Quinidine sulfate depressed conduction within the ventricles very early after its use, as indicated (1) by an unusual prolongation of the RST or QT segments, (2) by the appearance of progressively increasing negative T waves, and (3) by the development of deformed ventricular complexes associated with the onset of premature beats of the ventricles, only portions of which were superimposed on the ascending limbs of the T waves. These changes, which appeared early after the use of the drug, were similar to the changes observed as preliminary events in the natural course of transient ventricular fibrillation. Quinidine sulfate increased the refractory period of the ventricles, as may be judged by the early unusual prolongation of the returning cycles following the premature beats of the ventricles when they appeared during established atrioventricular dissociation. The drug was responsible for recurrent periods of transient ventricular fibrillation that persisted for hours once the mechanism set in following its use. Quinidine sulfate depressed both rhythmicity and irritability of the heart. Long pauses of asystole of the ventricle ended the fibrillary process and the impulse building centers in the atrioventricular node and ventricles were retarded. The drug augmented the effects of fatigue and rapid stimulation of the heart in the postfibrillary period.

Unlike procaine amide hydrochloride, quinidine sulfate did not influence the rhythmical center in the atrioventricular node unless conduction disturbances and refractoriness were affected first. The duration of the action of quinidine sulfate on such patients was longer than that of procaine, even when smaller doses were used. Quinidine sulfate is contraindicated in patients with transient ventricular fibrillation during established atrioventricular dissociation.

Familial Coarctation of the Aorta.—The occurrence of coarctation of the aorta in three members of one family, a 41 year old mother, a 16 year old daughter, and a 17 year-old son, is reported. Congenital heart defects occurring in several members of one family are not unusual, but familial coarctation of the aorta is unusual. These three cases support the view that heredity may act as an etiological agent in coarctation of the aorta, although this relationship must remain speculative.

American Journal of Obstetrics & Gynecology, St. Louis

65 465 696 (March) 1953 Partial Index

- Physician in Current Fiction R. A. Kimbrough Jr. and A. M. Kimbrough—p. 472
 *Circumvallate Placenta R. J. Paalman and C. G. Vander Veer—p. 491
 Postpartum Convulsions F. J. Hofmeister and R. C. Brown—p. 498
 Dysmenorrhea N. F. Miller and S. J. Behrman—p. 505
 Total Hysterectomy at Cesarean Section and in the Immediate Puerperal Period I. Dryer, F. G. Nix, J. C. Weed and C. H. Tyrone—p. 517
 Nineteen Year Survey of Maternal Mortality at Cook County Hospital J. E. Fitzgerald and A. Webster—p. 528
 Intraepithelial Carcinoma of Vulva S. H. Gardiner, F. E. Stout, J. L. Arbogast and C. P. Huber—p. 539
 Experimental Nonsurgical Therapy of Pelvic Malignancies Review A. C. Barnes—p. 550
 Relationships of Female Urethra and Bladder in Urinary Stress Incontinence C. P. Hodgkinson—p. 560
 Morbidity and Mortality in Total Hysterectomy C. G. Johnson and R. G. Burman—p. 574
 Colpocleisis K. E. Cox and R. F. Lamar—p. 583
 Bill's Maneuver in Relation to Persistent Occiput Posterior Position G. G. Greene and A. E. M. Smith—p. 611
 Studies of Effects of Diuretic Agents on Excretion of Water Sodium Potassium and Nitrogen in Pregnant Patients J. H. Randall, K. Daum, R. W. Knouse and E. L. Cocanougher—p. 618
 Merkel Modification of Richardson Test for Diagnosis of Pregnancy R. H. Fischer and S. P. McColgan—p. 628
 Vaginal Deliveries During Prolonged Curarization C. B. Pittenger, L. E. Morris and W. C. Keetel—p. 635
 Use of Dieneol to Inhibit Lactation in Nonnursing Mothers W. Kosar, W. Nash and C. L. Burton—p. 639
 Rh Isosensitization Intrauterine Fetal Death and Hypofibrinogenemia C. H. Peckham Jr. and L. F. Middlebrook Jr.—p. 644
 Note on Demand Feeding P. E. Rothman—p. 651

Circumvallate Placenta.—Experiences with 41 cases of circumvallate placenta in 8,562 consecutive deliveries are presented to demonstrate the clinical significance of this condition. While the diagnosis of circumvallate placenta cannot be made with certainty until labor is completed and the placenta inspected, intermittent vaginal bleeding, hydorrhea, and uterine contractions are the common symptoms that suggest the presence of circumvallate placenta. The predelivery diagnosis is oftenest confused with placenta praevia and abruptio placentae. Management of patients with circumvallate placenta is principally expectant, although bleeding in some cases demands treatment. The threats to the mother are hemorrhage, infection, and third stage complications. The fetal survival rate is low, due primarily to abortions and premature labors. Despite the fact that fetal loss is high, circumvallate placenta is disregarded as an etiological factor in many reports on fetal mortality. Textbooks on obstetrics likewise give few factual data about the clinical significance of circumvallate placenta, while devoting chapters to placenta praevia. There is also a paucity of reports regarding this entity in the current literature. The authors feel that it is extremely important to be aware of circumvallate placenta, for although there is little definitive therapy, it is a serious error to treat patients actively for the mistaken diagnosis of placenta praevia. They wonder how many are subjected to cesarean section for circumvallate placenta by those who routinely use section, without vaginal examination, in patients with bleeding in the last trimester of pregnancy.

FOREIGN

Acta Cardiologica, Brussels

81-110 (No 1) 1953 Partial Index

- Problems in Selection of Patients for Mitral Valvulotomy G Blorck —p 1
- Clinical and Physiological Study of Eight Cases of Isolated Pulmonary Stenosis R. Pannier A. van Loo K. Vuylsteek and others —p 8
- Ballistocardiogram in Acquired Valvular Disorders F Di Giuseppe —p 22.

Selection of Patients for Mitral Valvulotomy—Valvulotomy was performed on 13 patients with mitral stenosis who were regarded as good risks, 3 who were considered fair risks, and 2 who were poor risks. In evaluating the risk the authors took into consideration the functional capacity of the heart according to the classification of the New York Heart Association, and the mental and physical vigor of the individual patient. Of the 13 patients in the good risk group, 11 were clinically improved by the operation and 2 were not. Of the three less good risks, two were clinically improved and one died of ventricular fibrillation 48 hours after the operation. The two bad risk patients died postoperatively, one from cerebral embolism and the other from cardiac failure. Previous embolization increases the risk of mitral valvulotomy because of the possible presence of thrombotic material in the left auricle. Angiocardiography performed in 17 patients to determine the presence of thrombotic material preoperatively failed because only fairly large thrombi can be detected by this method, whereas the incidence of small thrombi is much greater. Attempts to collect thrombotic material by a hoop net passed into the left auricle along the surgeon's finger have not been encouraging. Early anticoagulant therapy with heparin and bishydroxycoumarin (Dicumarol) instituted at the end of the first or at the beginning of the second postoperative day did not cause any complications and should be carried out when a cerebral embolism has occurred during or after the operation and also in patients with large auricles, who are likely to have thrombosis within the auricle in connection with the intervention. As a result of his experience, the author states that many patients with mitral stenosis classified in functional group 3 of the New York Heart Association will benefit from valvulotomy. Patients classified in functional group 2 are good risks but derive little or only moderate benefit from surgical treatment, an improved technique may give them a better chance in a few years. Patients aged over 50 and with repeated embolisms have been considered as unsatisfactory risks, and patients with predominant mitral regurgitation, with active rheumatic or subacute bacterial endocarditis, with gross cardiac failure, or with damaged myocardium, have been considered unsuitable for mitral valvulotomy.

Isolated Pulmonary Stenosis—The occurrence of isolated pulmonary stenosis is reported in five children between the ages of 4 and 15 years and in three adults aged 24, 27, and 52. Four of the eight patients had no complaints and three complained of moderate dyspnea on effort, only the 52-year-old patient had moderately severe dyspnea and mild peripheral cyanosis, but this patient had malignant hypertension associated with pulmonary stenosis. A pronounced systolic thrill was felt in all patients, in five it was felt in the second left intercostal space and in one in the third intercostal space, in the remaining two it could be felt in two distinct locations, but it was more pronounced in the second intercostal space. In six patients moderate hypertrophy of the right ventricle was demonstrated on roentgenologic examination, while associated hypertrophy of the left ventricle was observed only in the 52-year-old patient. Electrocardiographic recording revealed deviation of the electrical axis to the right in five patients, a normal electrical axis in two, and left axis deviation in the patient with malignant hypertension. Examination of the fundus oculi revealed slight dilatation of the retinal veins in all patients and occasionally of the retinal arteries also. Cardiac catheterization was performed in all patients, and pressure

values as well as oxygen volume percentage corresponded with the criteria generally agreed on for diagnosis of isolated pulmonary stenosis. In six patients the ether circulation time test was performed by injecting 0.3 cc of ether intravenously or the same amount directly into the cardiac cavity through the catheter. All the patients had negative results from the test. Isolated pulmonary stenosis is a commoner congenital heart disease than was formerly believed. It rarely causes pronounced discomfort, and it may be tolerated well for a long time. Cardiac catheterization is of considerable aid in establishing the diagnosis. Determination of the oxygen content of blood samples withdrawn from the chambers of the right heart, the pulmonary artery, and the femoral artery are essential for making the differential diagnosis between pure pulmonary stenosis and that associated with arteriovenous or venous-arterial shunt. In isolated pulmonary stenosis the ether circulation time test is always negative. With the methods available today, the presence of a small but dynamically unimportant shunt cannot be excluded.

Bordeaux Chirurgica

No 4 157-216 (Oct.) 1952 Partial Index

- Diaphragmatic Hernia with Megadolichocolon Operated On, Late Pulmonary Functional Results Dufour Castaing Conardeau and Bricaud —p 157
- Twenty Five Cases of Spinal Anesthesia with Tetracaine Hydrochloride (2 Dimethylaminoethyl *p*-butylaminobenzoate hydrochloride) M. J. Magendie —p 161
- Ten Cases of Thromboangitis Treated by Adrenalectomy M. R. Tingaud. —p 166

Adrenalectomy for Thromboangitis—Adrenalectomy combined or not with sympathectomy was performed on 10 men between the ages of 26 and 60 with thromboangitis obliterans. Four of the 10 patients obtained excellent results, with complete disappearance of the functional disorder and the trophic disturbances, one a good result with diminished functional disturbances compatible with a certain degree of active life, and two moderate results with simple stabilization. Three were therapeutic failures, with death resulting in one. These results correspond to those reported previously by Wertheimer and Leriche. Adrenalectomy is not a miraculous method of treatment but a functional operation, it does not exert any effect on an established thrombosis, but the progressive character of the disease and its spasmodic element are definitely benefited. It has been emphasized that most patients were operated on after failure of medical treatment. Adrenalectomy should never be performed in senile angiopathy, and, although it is the method of choice for thromboangitis obliterans, it is bound to fail in patients in whom an arterial tree has been considerably impaired by sclerosis and has been obliterated in its total distal portion. Microscopic examination of the removed adrenals revealed hyperplasia of the medulla but also pronounced changes of the cortex. This is additional evidence in favor of adrenalectomy but not a proof beyond any doubt, since good results with medullectomy alone had been reported by other workers. In conclusion the author states that the results of medical treatment can not compare with those of surgical treatment. Adrenalectomy or medullectomy, when done early in a still functional stage of the disease or when thrombosis is still limited, will give results superior to those of any other therapeutic procedure.

British Journal of Radiology, London

26 113-160 (March) 1953 Partial Index

- Qualitative Comparison Between Standard Type of Examination and Tomography for Certain Intraosseous Structural Changes F. Knutsson. —p 113
- Method of Reducing Exposures in Indirect Radiography (Fluorography) P. S. Silver, T. H. Hills and R. W. Stanford —p 136
- Prognostic Value of Early Tests of Thyroid Function After Treatment of Thyrotoxicosis by ¹³¹I N. B. Myant. —p 139
- Tumours of Sacrum W. G. Norman —p 144
- Suprarenal Tumour Demonstrated by Presacral Insufflation of Carbon Dioxide K. E. Hodge. —p 147
- Relative Biological Effectiveness of 17 MeV Electrons M. K. Austin, J. S. Laughlin and H. Quastler —p 152

British Medical Journal, London

1 467-520 (Feb 28) 1953

- Electrophoresis of Human Gastric Juice in Relation to Castle's Intrinsic Factor A L Latner and C C Ungley—p 467
 Definition and Assessment of Respiratory Function K W Donald—p 473
 Thrombo-Angiitis Obliterans Clinical Diagnosis and Classification of Cases R L Richards—p 478
 Simplified Method of Drug Treatment for Thyrotoxicosis Using a Unit Form Dosage of Methylthiouracil and Added Thyroxine R. Fraser and M Wilkinson—p 481
 Pityriasis Versicolor and Some Scaly Conditions of Scalp F A Whitlock—p 484
 Case of Primary Ovarian Pregnancy R G Whitelaw—p 488
 Delayed Chloroform Poisoning in Obstetric Practice R L Lunt—p 489

1 521-576 (March 7) 1953

- *Isoniazid in Treatment of Pulmonary Tuberculosis Second Report to Medical Research Council by Their Tuberculosis Chemotherapy Trials Committee—p 521
 M Canis Ringworm and Loss of Schooling B A Thomas—p 536
 Field Trials of New Antimalarials in West Africa L J Bruce-Chwatt and H M Archibald—p 539
 *An Assessment of Chlorophyll as Deodorant J C Brocklehurst—p 541
 Capacity of Cationic Exchange Resin (Zeo-Karb 225) In Vivo P Fourman—p 544
 Effect of Nikethamide by Mouth in Man J G Macarthur—p 547

Isoniazid in Treatment of Pulmonary Tuberculosis.—A clinical trial of isoniazid alone and in combination with other drugs in the treatment of pulmonary tuberculosis is being conducted by the British Medical Research Council Streptomycin (1 gm daily) and isoniazid (100 mg twice a day) were given to 142 patients, streptomycin (1 gm daily) and sodium *p*-aminosalicylate (5 gm four times a day) were given to 102 patients, and isoniazid alone (100 mg twice a day) was given to 120 patients. The type of treatment given was allocated at random. Three main groups of patients were observed (1) those with acute, rapidly progressive disease of recent origin, (2) those with other forms suitable for chemotherapy, and (3) those with chronic disease unlikely to respond to chemotherapy. The distribution of patients with severe and less severe illness was similar for each type of treatment. The general condition of the majority of patients had improved at the end of three months, but the differences between the results obtained by the various types of treatment were slight. Average weight gains were 13 lb for patients receiving streptomycin and isoniazid, 6 lb for those receiving streptomycin and *p*-aminosalicylic acid, and 13 lb for those receiving isoniazid alone. The temperature of febrile patients fell to normal in 82% of those given streptomycin and isoniazid, 76% of those given streptomycin and *p*-aminosalicylic acid, and 68% of those given isoniazid. Reduction of the erythrocyte sedimentation rate from 21 mm or more to 10 or less was observed in 45% of the patients given streptomycin and isoniazid as compared with 21% of those given streptomycin and *p*-aminosalicylic acid and 25% of those given isoniazid. Patients receiving combined treatments showed a better radiographic response than those given isoniazid alone. The proportions of patients bacteriologically negative, both on direct examination and on culture, at a single examination after three months of treatment were 67% for those receiving streptomycin and isoniazid, 55% for those receiving streptomycin and *p*-aminosalicylic acid, and 37% for those receiving isoniazid. The results obtained at the end of three months indicate that the combination of streptomycin and isoniazid with the dosages used was the most effective treatment, although its superiority to streptomycin and *p*-aminosalicylic acid was not great, full evaluation cannot be made without a longer period of observation. Studies of drug resistance show that none of the three drugs, isoniazid, streptomycin, or *p*-aminosalicylic acid, should be used by itself, nor should any two of them be used in combination for a patient who has already developed resistance for one of the two.

Use of Chlorophyll as a Deodorant.—Experiments are reported to show that chlorophyll has no value as a deodorant. Four types of chlorophyll were used (1) sodium copper chlorophyllin in a solution of 1 gm in 10 ml, (2) a crude commercial preparation of water soluble chlorophyll intended for use as coloring matter, (3) a proprietary preparation intended for use as a wick type atmospheric deodorant, and (4) a proprietary

preparation for dispensing purposes, said to contain 12.5% water-soluble chlorophyll. Two experiments providing objective determinations of the effect of chlorophyll on odors showed that (1) exposure of methylmercaptan gas in a closed system to water soluble chlorophyll did not reduce the amount of gas passing over to an indicator as compared with a control, and (2) exposure of small quantities of methylmercaptan gas to water-soluble chlorophyll in a closed system for up to three days did not remove the smell of mercaptan. The third experiment, in which it was found that exposing various strong smelling solutions to water soluble chlorophyll by mixture did not remove the smell of the solutions even when exposure was continued for one or more months, depended on the observer's sense of smell. Criticism based on this fact, however, would be equally applicable to all previously published findings supporting the value of chlorophyll as a deodorant. Chlorophyll was administered, in various forms, to an incontinent patient without any effect on the characteristic odor of urine. Large doses of chlorophyll tablets (at least 25 times greater than those usually recommended) failed to prevent the appearance of the distinctive odor of asparagus in the urine after the eating of this vegetable, and 800 mg of chlorophyll taken daily for one week did not remove the odor of urine, feces, or axillary perspiration.

Gazzetta Medica Italiana, Milan

112 1-28 (Jan) 1953 Partial Index

- Chlorophyll in Treatment of Skin Lesions Experimental and Clinical Study E Perazzo and M Fantino—p 1
 Intravenous Infusions of Penicillin Procaine Hyaluronidase in Treatment of Chronic Pulmonary Suppurations E Lutzu—p 8
 *Two Years Experience with Thiosemicarbazone in Tuberculosis C Rognato—p 15

Thiosemicarbazone in Tuberculosis.—A follow up of 143 patients with various forms of tuberculosis 6 to 12 months after discontinuation of thiosemicarbazone therapy revealed good results in 72% of them. The effects of the drug were especially good in patients with secondary hilitis, early in filtrations, lobitis, nodular infiltrations before the onset of ulcerous and caseous lesions, and military and cavitary forms amenable to collapse therapy. Patients with chronic primary or secondary tuberculosis had slight improvement only, whereas results were poor in those with cavitary forms. In these patients, however, the intracavitary secretion was decreased. The drug was given orally to all patients and those with osteochondritis received it locally also. On the first day 25 mg were given in two divided doses after meals, every day thereafter the dose was increased by 25 mg up to a total daily dose of 150 mg. This quantity was given in three divided doses after each meal, and this first course of therapy was continued for 90 days. After a 30 day treatment free interval, 100 mg. were again given daily for 30 days in two divided doses after breakfast and dinner. The therapy had to be discontinued in 10 patients because of side effects attributable to their neuropathic tendency. After 10 to 15 days, there was an improvement in most of the other patients, asthenia decreased, elevated temperatures dropped, and appetites increased, and after 25 to 50 days 92% of the patients had gained weight. The erythrocyte sedimentation rate decreased in 90% within 15 to 20 days. The radiological picture improved in 101, especially in those with hilitis, early inflammation, lobitis, and pneumonia. Slight traces of albumin were found in two patients during the treatment, while they disappeared in 6 of 10 patients in whom they were present before the drug was given. Skin reaction to percutaneous injection of thiosemicarbazone increased in 35 patients. To account for the greater in vivo action of the drug as compared to its in vitro action, the author says that biochemical changes occur in the organism after the administration of the drug and these produce defense reactions. In fact, the decrease in the erythrocyte sedimentation rate is, according to him, too abrupt to be attributed to the bacteriostatic action of thiosemicarbazone alone. A twofold activity of the drug, bacteriostatic and nonspecific, is suggested and is attributed to the complexity of the thiosemicarbazone molecule.

BOOK REVIEWS

Acute Renal Failure, Including the Use of the Artificial Kidney By John T. MacLean M.D. F.R.C.S.(C) F.A.C.S. Assistant Urologist Royal Victoria Hospital Montreal Cloth \$6.50 Pp 114 with 28 illustrations Charles C Thomas Publisher 301 327 E Lawrence Ave Springfield Ill Blackwell Scientific Publications, Ltd 49 Broad St Oxford England Ryerson Press 299 Queen St W Toronto 2B 1952

This book describes and interprets the signs of acute renal failure and presents the treatment, including the use of the artificial kidney. There are discussions on factors that produce renal insufficiency, role of acid base balance, renal circulation, lower nephron nephrosis, and treatment. But the work is unsatisfactory, for inaccurate or careless statements are found throughout the book. The author often fails to recognize that the support offered for his beliefs has been disproved or is, at least, far from accepted. For example, it is stated that renal blood flow in acute renal insufficiency is dependent on increased viscosity, vasoconstrictor material, vasodepressor material, Trueta arteriovenous shunts, and the Barrie renal sponge. Investigators' names are used or omitted for no evident reason, for example, Borst is not mentioned in connection with the high caloric diet Kolff reported on the artificial kidney in 1943, not concurrently with Murray in 1947. The make up of the book is not up to the usual standard of the publisher. A graph on page 18 is upside down, the labeling is careless, i.e., chlorine for chloride, and the purpose of several beautiful color plates, on pages 32 and 33, is not clear.

Syphilitic Optic Atrophy By Walter L. Bruetsch M.D. Clinical Professor of Neurology and Psychiatry Indiana University School of Medicine Indianapolis. Publication number 142 American Lecture Series monograph in Bannerstone Division of American Lectures in Ophthalmology Edited by Donald J. Lyle M.D. F.A.C.S. Professor of Ophthalmology College of Medicine University of Cincinnati Cincinnati Ohio Cloth \$5.50 Pp 138 with 27 illustrations Charles C Thomas Publisher 301 327 E Lawrence Ave Springfield Ill. Blackwell Scientific Publications Ltd 49 Broad St. Oxford England Ryerson Press, 299 Queen St. W Toronto 2B 1953

The data analyzed in Bruetsch's monograph on syphilitic optic atrophy at last permit the optimistic statement that "the time has arrived when blindness due to syphilitic optic atrophy can be prevented. This achievement has been accomplished by the recognition of the early stages of the disease and particularly by the advent of successful treatment methods." This book is written by a man who has studied many cases both clinically and pathologically. The subject is covered from every angle: historical background, incidence of syphilitic optic atrophy, its incidence in various types of neurosyphilis, and its relative incidence among optic atrophies from other causes. After careful review of the theories of the pathogenesis of syphilitic optic atrophy, the author proposes a convincing concept, from his clinicopathological studies, that so-called primary syphilitic optic atrophy is always due to a chronic inflammatory process, which is followed by a slow degeneration of the nerve fibers. Bruetsch has presented much evidence, both from experience and from the literature, that contradicts Igersheimers isolated observation of degeneration without inflammation. This indicates that there is but meager proof to justify such an important concept as the existence of a purely degenerative type of optic atrophy in general paralysis and in tabes dorsalis (so-called primary optic atrophy).

Other phases of the subject of syphilitic optic atrophy, such as pathology, clinical features, treatment, and prevention, are covered. There is also a supplement in which consecutive or secondary syphilitic optic atrophy, gummatous meningitis and optic atrophy, and syphiloma of the chiasm and optic nerves are included. The book has an excellent bibliography and index, and the illustrations are well chosen.

Special mention should be made of Bruetsch's discussion of therapy. While all agree that penicillin has an almost miraculous action in the acute early processes, such as acute syphilitic

meningitis, and has given great promise of a similar effectiveness in the late manifestations of syphilis of the central nervous system, the large total dosage scheme that the author suggests for the treatment of syphilitic optic atrophy deserves careful trial. Certain practical suggestions for the prevention of this costly and important cause of blindness are also outlined. This small volume should be studied by the ophthalmologist and the syphilologist.

Clinical Problems of War By Allan S. Walker M.D. Ch.M. F.R.A.C.P. Volume I Australia in the War of 1939-1945 Series 5 Medical. Cloth 35/ Pp 726 with illustrations Australian War Memorial Canberra [for sale by Angus & Robertson Limited 89 Castlereagh St., Sydney N.S.W. Australia] 1952

This volume is part of a set that, when finished, will comprise the medical history of Australia during World War II. It concerns the diseases and injuries that affected the Australian armed forces. The seriousness of the various diseases in respect to the Australian forces can be judged in part by the size of the chapters in this book. The chapter on malaria, the largest chapter, is an excellent review of the experience of Australian troops with malaria in the various countries in which they served. It also reviews the work of the research unit on the newer antimalarial drugs. Since only a few cases of Brucella infection occurred in the Australian services, the chapter on brucellosis is less than one-half page. The other chapters pertain to blood transfusion, cerebrospinal meningitis, amebiasis, wounds, amputations, diphtheria, filariasis, ankylostomiasis, schistosomiasis, tuberculosis, cardiovascular diseases, malnutrition, plastic and faciomaxillary surgery, anesthesia, diseases of the central nervous system, bacillary dysentery, dermatology, ophthalmology, pathology, psychiatry, and dental surgery. While the author claims this volume is neither a textbook nor a military manual, one definitely feels and appreciates its textbook nature. He gives credit to others who assisted him. There are illustrations of methods and equipment, but the outstanding feature is the simple language used masterfully by the author. Unlike some military histories, this book is easy to read. There are no military orders and directives usually so numerous in histories of wars.

The author pays tribute to the part played by applied science in alleviating the suffering caused by war. But science, he says, is not enough. There is need too for humility, for the new developments of the scientific method are leading man more and more to destroy, not only by physical violence but also by the moral violence of suppressing and denying the true culture of mind and spirit. Should we not look, he asks, to ends rather than to means, nothing but a change of heart can achieve this, for it is a question of spiritual values. The author closes his brief epilogue with the statement 'The doctor is still a champion of the individual, he stands at the springs of life and death in peace as in war, and as a citizen he must accept this challenge.'

Current Therapy 1953. Latest Approved Methods of Treatment for the Practicing Physician Editor Howard F. Conn M.D. Consulting editors M. Edward Davis et al. Cloth \$11 Pp 835 W. B. Saunders Company 218 W. Washington Sq. Philadelphia 5 7 Grape St. Shaftesbury Ave London W.C.2 1953

The current edition of this publication is a symposium of the present methods of treatment used by prominent authorities in both medicine and surgery. The list of contributors represents a veritable "Who's Who" of American clinicians in the various specialties, and the book covers all phases of therapy for all types of human disease. The subject matter is arranged according to the usual textbook classifications of disease and is primarily restricted to treatment. Preventive measures are indicated when pertinent, but etiology and diagnosis are not discussed except when they are an integral part of therapy. In some diseases the method of more than one contributor is outlined, and these may differ in accordance with the par-

ticular views or concepts of the authors Editorial opinion is purposely avoided to preserve the point of view of each contributor Long-established treatments as well as newer advances are included depending on the preferences of the authors Operative techniques are not described in detail, but surgical treatment is specified when indicated

The discussions of treatment are concise and designed for ready access The two-column pages are especially suited to rapid reading In addition to the main text, the book includes a roster of drugs, metric and apothecary systems, percentage tables and author and subject indexes Typographic errors are not often encountered The use of an amphetamine inhaler in the later stages of the common cold, as mentioned on page 8, is out-of-date, since amphetamine is no longer marketed in that form It has been replaced by the propylhexedrine (Benzedrex) inhaler, mentioned on the succeeding page In the statement on page 112, "isonicotinic acid hydrazine—the accepted generic name now is isoniazids," the last word should be isoniazid The preference given to trade names in the roster of drugs is disappointing and the descriptions included after each drug closely resemble advertising material for the particular brand listed As a whole, this book will be welcomed by physicians who desire a complete and convenient reference to current methods of therapy

Familial Nonreaginic Food Allergy By Arthur F Coca M.D With contributions by Conrad Berens M.D et al Third edition Cloth \$10.50 Pp 279 with 21 illustrations Charles C Thomas Publisher 301-327 E. Lawrence Ave Springfield Ill Blackwell Scientific Publications Ltd 49 Broad St Oxford England Ryerson Press 299 Queen St W, Toronto 2B 1953

This book presents the concept of a form of allergy that the author claims affects more than 90% of the population He calls this idioblastosis, or familial nonreaginic food allergy The presence of such allergy is suspected with a history of any of the following symptoms headache, heartburn, indigestion, constipation, nervousness, neuralgia, abnormal tiredness, and hemorrhoids Most cases of idioblastic allergy are caused by foods, although a large percentage are caused by sensitivity to tobacco and house dust It is inferred that such food allergy is involved, either as a direct or predisposing cause, in hypertension, epilepsy, glaucoma, dementia precox, frigidity, nausea and vomiting of pregnancy, multiple sclerosis, carcinoma of the breast, and colds In discussing other infections, the author alludes to 'the importance of idioblastic allergy as a predisposing influence in poliomyelitis' He says elsewhere "Among a group of 297 persons affected with clinically malignant tumor of the breast, none was found in whom food allergy could reasonably be thought to be absent," and "The evidence suggests that multiple sclerosis is curable through the simple stabilization of the pulse by avoidance of pulse-accelerating allergens"

The diagnosis of idioblastic allergy is made if the patient has a pulse rate of 88 or higher at any time and if the daily range exceeds 20 An increase of several beats after ingestion of a trial food indicates an allergy to that food Treatment is by avoidance of the offending agent, histamine injections, and sympathectomy The first case of sympathectomy for food allergy was the author himself, who was forced to do something drastic when he found himself clinically allergic to all avoidable foods excepting beef" On the basis of well-considered opinion and experience of mature workers in allergy and medicine, the concept presented cannot be supported

Lumbar Disc Lesions: Pathogenesis and Treatment of Low Back Pain and Sciatica. By J R Armstrong M.D MCh F.R.C.S Orthopaedic Surgeon to Metropolitan Hospital London Foreword by H Osmond Clarke C.B.E F.R.C.S Orthopaedic Surgeon London Hospital Cloth \$8 Pp 228 with 77 illustrations Williams & Wilkins Company Mount Royal and Guilford Aves Baltimore 2 E. & S Livingstone 16 and 17 Teviot Place Edinburgh 1 1952.

This is one of the outstanding contributions to the literature on the intervertebral disk The author briefly and concisely presents the causes of radiating low back pain and discusses the fundamental basis for each symptom and sign The clinical picture is crystallized for the reader in the inimitable style of the accomplished British writer and is illustrated beautifully with colored and black and white figures The author draws

on his large experience in the diagnosis and treatment of ruptured disks to discuss the most successful techniques of diagnosis and surgical treatment His opinions are conservative and highly acceptable, however, the danger of diagnostic spinal puncture and myelogram is overemphasized The dangers described do not coincide with the experience of others in large series of cases Furthermore, not all will agree with Armstrong that surgical fusion after removal of a ruptured disk is the procedure of choice The general opinion is that fusion is not necessary unless specific indications for fusion exist aside from the ruptured disk This book is recommended to all who are interested in the diagnosis and treatment of ruptured intervertebral disk

Visual Anatomy: Thorax and Abdomen By Sydney M. Friedman, M.D Ph.D Professor of Anatomy University of British Columbia Vancouver Canada. Cloth \$10.50 Pp 203 with 91 illustrations. Charles C Thomas, Publisher 301-327 E. Lawrence Ave Springfield Ill Blackwell Scientific Publications Ltd. 49 Broad St. Oxford, England Ryerson Press, 299 Queen St. W Toronto 2B, 1952.

The author has attempted to present the anatomy of the thorax and abdomen visually and has utilized the written text only as a supplement. *Anatomic variations and anomalies have been intentionally omitted* The presentation begins with the skeletal framework and leads outward to the soft tissues The material is extremely sketchy and abbreviated. The layer-by-layer presentation has been adhered to especially in the section dealing with the mediastinum where "planes" are discussed. This is commendable, since it gives the reader a tridimensional perspective

Unfortunately, the thymus has been portrayed in a misleading fashion No concept can be gained as to the size, structure, limits, and form of this organ as seen in figure 26 This volume has been written for clinicians as well as others, however, no clinician would agree with the presentation of the gallbladder as depicted in figure 44 No mention is made of its fundus, corpus, infundibulum, and neck. Of particular importance is the relationship of the infundibulum to the extrahepatic biliary ducts, yet there is no description of this in the figure or in the text The inconsistency of the presentation of the material in color confuses the reader, for example, figure 47 shows the branches of the celiac axis and the superior mesenteric artery in red, however, figure 49 shows the blood supply to the stomach in black Because of poor printing it is particularly difficult to read the labels in the illustrations

A great deal of sincere effort has gone into the preparation of the text and the execution of the illustrations Since the work is directed to postgraduates as well as undergraduates it might have been well to correlate 'operating table anatomy' with that found on the cadaver

The Practical Management of Pain in Labour By W D Wylie, M.A., M.B. M.R.C.P. Anaesthetist to St. Thomas's Hospital and National Hospital for Nervous Diseases, London Cloth. \$3.50 18s.6d. Pp 148 with 42 illustrations [Year Book Publishers Inc. 200 E. Illinois St. Chicago 11] Lloyd-Luke (medical books) Ltd 49 Newman St. London, W1 1953

This book was written primarily for anesthetists The subject matter covers anatomic and physiological considerations, agents, apparatus, normal labor, abnormal labor, cesarean section, local analgesia, and therapeutic analgesia and anesthesia Each chapter is followed by a brief, well selected bibliography from British and American literature The volume concludes with an adequate index The author deals mainly with the application of analgesic and anesthetic agents and techniques, with considerable emphasis on analgesic concentrations of inhalation agents Inhalation apparatus presented is mainly of foreign manufacture and unfamiliar to many American anesthesiologists Inclusion of the limitations placed on the British midwife regarding the use of analgesia in labor is interesting to American readers It is apparent that subarachnoid and extradural techniques have gained greater favor in this country than in England, probably because of the fact that a great proportion of all deliveries there take place at home rather than in hospitals There is no mention of the usefulness of ethylene in obstetrics

Since the author writes in an authoritative manner, some of his statements would have more emphasis if his own experience with methods, percentage of complications, and failures

was included. The author is to be complimented on the excellence of his writing in an overlapping field, since material pertinent to the obstetrician's responsibilities is included. His emphasis on full cooperation between obstetrician and anesthesiologist for the most desirable and safest results is timely. This clear, concise, and well written book, with excellent illustrations, can be read profitably by all physicians concerned with management of pain in obstetrics.

Der Kopfschmerz. Von Priv. Doz. Dr. Ernst Pichler. Graz. Mit einem Geleitwort von Univ. Prof. Dr. Otto Pütz. Cloth \$6.45. Pp. 214, with 17 illustrations. Springer Verlag. Mölkerbastei 5. Vienna 1. 1952.

The author describes the various kinds of headache, with emphasis on etiology and differential diagnosis. The first part covers general considerations of anatomy and physiology, especially vasomotor phenomena, and the second part takes up particular problems, such as headaches associated with migraine, skull fractures, disturbances of the cerebrospinal fluid system, hypertension, and diseases of the eye. Many readers will appreciate the suggested plan of examination and the summary of differential diagnosis. This book has several faults often noted in contemporary medical literature. One is the misuse of abbreviations. The letters "NNR" on page 51 evidently do not mean "New and Nonofficial Remedies," but, after wasting time to discover what they do mean, the reader is likely to go on to something else. The same holds true with "HVL" and "DHE." Curiously, on page 51, the author uses "CCC" and explains that this means 'carbaminoylecholin-chlorid', since the term is not used again, it is not clear why the abbreviation was used. There is no distinction between proprietary drugs and chemical compounds in the sections on therapy. This greatly reduces the scientific value of the text and increases the difficulties of foreign readers. The author does not adduce critical evidence for the value of suggested modes of treatment, and, since he rarely mentions dosages, it must be assumed that he does not take this aspect of his subject seriously. Except for these faults, the book shows an excellent command of the subject. A bibliography of about 200 references is included.

Erwin Frink Smith: A Story of North American Plant Pathology. By Andrew Denny Rodgers III. Memoirs of American Philosophical Society held at Philadelphia for Promoting Useful Knowledge. Volume 31. Cloth \$5. Pp. 675 with four photographs. American Philosophical Society. Independence Sq. Philadelphia 6. 1952.

This volume presents a detailed and well-documented account of the scientific accomplishments of Erwin Frink Smith, who developed the laboratory of plant pathology of the United States Department of Agriculture and directed its activities from 1886 to 1927. Dr. Smith can truly be considered the dean of American plant pathologists. Under his leadership, many plant diseases of great economic importance were brought under control, and his fame as a research pathologist was widely acknowledged in this country and abroad. Dr. Smith was a strong believer in the essential similarity of pathological processes in plant and animal tissues. His viewpoint that the plant cancers, which he believed were caused by parasitic organisms, were similar in behavior to malignant lesions in animals attracted the attention of many prominent contemporary clinicians and students of cancer. Thus, while this extensive biography is of interest primarily to students of the botanical sciences, it is also of interest to medically oriented readers, particularly those interested in the trends of cancer research during the early decades of the century.

Ophthalmic Pathology: An Atlas and Textbook. By Jonas S. Friedenwald et al. With editorial assistance of Helen Knight Steward. Published under joint sponsorship of American Academy of Ophthalmology and Otolaryngology and Armed Forces Institute of Pathology. Cloth \$18. Pp. 489 with 240 plates. W. B. Saunders Company. 218 W. Washington Sq. Philadelphia 5. 7 Grape St. Shaftesbury Ave. London, W.C.2. 1952.

The Registry of Ophthalmic Pathology, oldest of the American Registries of Pathology of the Army Medical Museum (now the Armed Forces Institute) is the largest and most inclusive collection of ophthalmologic pathological material in existence. This vast reservoir of specimens has been utilized in the preparation of this volume. An outstanding

group of authorities collaborated in its production. The volume is an outgrowth of the "Atlas of Ophthalmic Pathology" by DeCoursey and Ash. The authors, utilizing Friedenwald's "Pathology of the Eye" as a basis for the text, have succeeded in producing an authoritative treatise. The text is accurate, adequate, and well written, so that it can be read easily and is of interest to the novice as well as the trained pathologist. There are chapters dealing with anatomic and physiological considerations, histology, growth and aging, nature and mechanism of inflammation, endophthalmitis and phthisis bulbi, focal lesions in endogenous endophthalmitis, granulomatous inflammations, injuries, hereditary and degenerative diseases, and tumors, in addition to chapters on each of the anatomic subdivisions of the eye and orbit. There are many well reproduced photomicrographs illustrating each topic. It is regrettable that they are reproduced in black and white instead of color, but this is not a serious deficiency. The illustrations have been placed at the conclusion of each chapter, an arrangement that has some disadvantages for the casual reader but is no serious handicap to the serious student.

Qualitative Analysis and Analytical Chemical Separations. By Philip W. West. Ph.D. Professor of Chemistry. Louisiana State University. Maurice M. Vick. Ph.D. Associate Professor of Chemistry. Louisiana State University. and Arthur L. LeRosen. Ph.D. Cloth \$3.75. Pp. 223 with 12 illustrations. The Macmillan Company. 60 Fifth Ave. New York 11. 1953.

For the first time since 1850, a scheme of analysis is presented that does not require the use of hydrogen sulfide. Laboratories in which hydrogen sulfide is not used will be cheaper and safer to operate, the new analytical scheme is easy to learn, and modern techniques for identifying specific ions are employed. The book is both a laboratory manual and an exposition of the theoretical aspects. The instructions are easy to follow, the questions to be answered in the laboratory notebook provoke study of the relevant theory, and the sections dealing with theory are clearly written. Although budding chemists will profit by being taught from this book, the authors had in mind the large number of students for whom qualitative analysis is a required subject, including students of nursing and medicine. Many features will make the material useful for the instructor as well as for the student: all the reagents required are listed, the table of atomic weights is on the inside front cover, a log table is on the inside back cover, and there is an adequate index. The relatively low price of the book is partly due to the use of paper of only fair quality, and, consequently, if the laboratory manual were soiled by chemicals, the financial loss would not be great.

Understanding Stuttering. By A. B. Gottlob. Ph.D. Director. Los Angeles Speech Correction Clinic. Los Angeles. Cloth \$5.50. Pp. 274 with 4 illustrations. Grune & Stratton Inc. 381 Fourth Ave. New York 16. 1953.

The speech organs and speech production are reviewed. Psychological factors contributing to the production of stuttering and the theories explaining this phenomenon are presented. The greater portion of the book describes methods of evaluating and treating the person who stutters and includes consideration of the patient's family and other environmental factors. The book is written by an educator and should be of value to teachers of speech correction. It is not a source of medical information for purposes of differential diagnosis and psychiatric care.

Pheochromocytoma and the General Practitioner. By Joseph L. DeCoursey. M.D. and Cornelius B. DeCoursey. M.D. Cloth. \$4. Pp. 165. DeCoursey Clinic. Cincinnati 2, 1952.

This small book presents pheochromocytoma as a "great mimic" and emphasizes the fact that tests for the tumor should be made on each patient with hypertension. An interesting historical résumé initiates the text, and after this the author presents the clinical problem of the tumor and discusses case histories, pathology, physiology, symptoms, diagnosis, and treatment. There are 361 references. The book will familiarize the general practitioner and the student with this rare but important problem.

QUERIES AND MINOR NOTES

CATARACT IN OCTOGENARIAN

TO THE EDITOR—*A man, aged 81, in good physical condition, has a mature cataract in the right eye and 20/30 corrected vision in the left eye owing to an incipient cataract. The condition has remained unchanged for seven years. Tension in the right eye is slightly below normal and the retina is still functioning, according to light perception tests. The patient wants unilateral or bilateral cataract surgery done to improve reading vision. A competent ophthalmologist has advised against cataract surgery. Could any benefit be derived from it?*

M.D., Texas

This inquiry was referred to two consultants, whose respective replies follow—Ed

ANSWER—If the slow and unsatisfactory reading vision of this patient's left eye can conclusively be shown to be due to the incipient cataract and not to a senile macula degeneration and if reading means a great deal to the patient, a cataract extraction on the right eye would seem indicated, in the hope that this would give the patient the reading vision he desires. A lens extraction on the left eye is not recommended, since for general use (by an octogenarian) 20/30 vision obtained with a slight correction is more practical than 20/20 or 20/15 vision with an aphakic correction.

ANSWER—It is possible that single binocular vision with correction for bilateral aphakia could be obtained after removal of cataracts from both eyes. In that case, the patient probably would enjoy more comfortable reading vision. Removal of the mature cataract from the right eye only would not permit single binocular reading vision and, of course, would be of no benefit. In this case, the uncertainty of restoration of good visual acuity in the right eye, even with the satisfactory light projection tests, and also the hazard of loss of reading vision in the left eye by cataract operation must be considered. Since the patient is able to read with one eye even though slowly, it is best, at his age, to advise against cataract surgery.

CHICKENPOX

TO THE EDITOR—*Are children recovering from chickenpox not considered infectious, and are they routinely allowed to return to school, even though they are still covered with pustules?* Chancellor H. Whiting, M.D., Oneida, N. Y.

ANSWER—According to "Control of Communicable Diseases in Man," which is a report of the Committee of the American Public Health Association (ed 7, 1950), the period of communicability of chickenpox is designated as "probably not more than one day before nor more than six days after the appearance of the first crop of vesicles. The rules and regulations for the Control of Communicable Disease, revised Aug 1, 1952, and enforced throughout Illinois, issued by the Illinois State Department of Public Health states that "isolation is required for not less than seven days after the appearance of the eruption." Chickenpox lesions are characterized by macular vesicles that appear in crops. They rarely become pustular, but dry up and form scabs. It is believed that the usual skin lesions that remain for seven days from the onset of the eruption are not infectious.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address but these will be omitted on request.

TREATMENT OF POLYCYTHEMIA

TO THE EDITOR—*What is the status of treatment of polycythemia by means of radioactive substances? Are there any dangers connected with this therapy? Would you advise radiation prior to treatment with radioactive substances?*

M.D., Illinois

ANSWER—Polycythemia vera can be treated successfully with radioactive phosphorus (P^{32}). The material can be given intravenously or by mouth. The average dose is 3.5 to 4 mc, given intravenously or 5 to 6 mc given by mouth. If the red blood cell count does not decrease in a few weeks more radioactive phosphorus may be given. Hundreds of patients have been treated with radioactive phosphorus with good results. The dangers of use of radioactive phosphorus are the same as those with any other form of irradiation (spray or spot), i.e., depression of the bone marrow causing hypoplasia of any or all of the formed elements. Lawrence points out, however, that the incidence of thrombocytopenia or aplastic anemia is no greater than occurs in the natural course of the disease. Since the use of radioactive phosphorus is a form of irradiation, preliminary x-ray therapy is not necessary and is in fact undesirable. According to Lawrence, the use of phosphorus gives much better results and is at least as safe as spray or spot irradiation, however, other authorities consider use of radioactive phosphorus merely another type of irradiation therapy, and at least one authority believes it is more dangerous than other methods, such as phlebotomy.

PAINFUL HEEL

TO THE EDITOR—*A 65-year-old housewife has had constant, severe pain in the weight bearing area of her right heel for eight months. Physical examination reveals nothing except slight obesity and localized tenderness over the weight bearing area of the os calcis. Treatment with protective padding in the shoes, salicylates, and a series of four local injections of procaine and hyaluronidase has been ineffective. Roentgenograms of the area are completely normal as are results of routine blood studies and urinalysis. The patient's general health is good. I would appreciate your comments.*

Herbert H. Kersten, M.D., Fort Dodge, Iowa

ANSWER—Pain in the heel usually occurs at the site of the plantar fascia on the os calcis. This is the result of tension on the plantar fascia. An inflammation arises at the calcaneal attachment of the fan shaped plantar fascia. In the earliest stages this inflammation is painful but shows no changes on roentgenograms. Periostitis may be present, with negative roentgenographic findings. When deposits occur, roentgenograms will show thickening and formation of a spur. The longer inflammation is present the more evident is spur formation. The tension on the plantar fascia is the result of the lowering of the longitudinal arch, secondary to foot strain. Foot strain is the result of prolonged standing, and excessive weight is a factor. Correction by means of adhesive strapping, felt pads, and corrective shoes is indicated.

SWELLING OF FEET IN HOT WEATHER

TO THE EDITOR—*What is the explanation for swelling of the feet and legs in a man who usually lives in the temperate zone but who occasionally pays a visit to a semitropical country? Many persons seem to have this trouble during vacation in southern regions.*

D. A. MacGregor, M.D., Wheeling, W. Va.

ANSWER—Swelling of the feet and occasionally the legs is commonly observed in persons who travel from temperate to tropical regions. This phenomenon also occurs, especially in women, in temperate regions during the summer. It has been suggested that the swelling is related to the increases in the vascular bed and in vascular pressure in the feet that have been observed to occur in an environment of heat.

NEPHROTIC SYNDROME IN CHILD

TO THE EDITOR—A 3 year-old boy has generalized edema and a blood pressure of 118/90 mm Hg. Urinalysis showed 4+ albumin, a few white blood cells, no red blood cells, no sugar, and a specific gravity of 1.030. Results of laboratory studies done two days after the urinalysis were as follows: blood nonprotein nitrogen level 35 mg per 100 ml, serum cholesterol level 595 mg per 100 ml, serum protein level 4.04 gm per 100 cc, serum albumin level 2.31 gm per 100 cc, serum globulin level 1.73 gm per 100 cc, and albumin-globulin ratio 1.21. Results of reexamination one week after the original visit were essentially the same, except for an increase in edema with probable ascites; the child did not, however, appear or act sick and was content to play as usual. Two weeks after the original visit, the condition was essentially unchanged. The patient was placed on a high protein, low sodium diet, and rest was advised. The past history is essentially normal, except for the occurrence of intermittent angioneurotic edema over the past several weeks with reddened maculopapular discrete areas, which often appear and disappear within a few hours. Does this child have a nephrotic syndrome or a nephrotic phase of glomerulonephritis?

M.D., Washington, D.C.

ANSWER—This child probably has a nephrotic syndrome, possibly on an allergic basis, in view of the history of angioneurotic edema and skin rash. Careful inquiry should be made regarding administration of drugs during this period. Food sensitization has not been implicated as a cause of nephrosis. If signs of hypersensitivity recur, the use of corticotropin or cortisone would be indicated for this reason as well as for the control of nephrotic edema. The prognosis is good if the edema can be mobilized and if nutrition is maintained and the child is protected against infections by the prophylactic use of antibiotics. About half of the children with nephrosis recover completely after a variable course of remissions and relapses. The prognosis becomes much poorer if signs of glomerulonephritis, i.e., hematuria, hypertension, and renal functional impairment, develop.

BLOODLESS PHLEBOTOMY

TO THE EDITOR—I would be grateful for information on the tourniquet method for doing bloodless phlebotomy, including the exact place to apply the tourniquet, tightness in using it, length of time to leave it in place and possible hazards.

Anna W. Perkins M.D., Albany County, N.Y.

ANSWER—Blood pressure cuffs are applied to all four extremities at the torso. The cuff pressure is raised to about 70 mm Hg (just below diastolic pressure) and is maintained at this level for 15 minutes; the cuff pressure is then dropped to zero for one minute. The pressure may be reapplied several times. Towels or rubber tubing may be used as tourniquets if blood pressure cuffs are not available, although it is not possible to gauge the pressure with them. Experiments on man suggest that as much as 15% of the blood volume of the torso and head may be trapped by this maneuver. Some fluid will also transude out of the vascular tree. If peripheral edema is present, the degree of transudation will be limited. If relief is forthcoming, it will appear within a few minutes. Respiration may become freer, and the patient will be less excited. Pulmonary rales and wheezing may be greatly relieved, with the alleviation of cyanosis and, sometimes, slowing of the heart rate. Arterial blood pressure may fall in some cases, and, rarely, a shock-like state may appear. The bloodless venesection technique may be of value in the emergency treatment of acute pulmonary edema or paroxysmal cardiac asthma. Physiologically, bloodless venesection can be only considered as a stopgap, since it removes fluid from the systemic veins and pulmonary vessels only to store it in the limbs. The tourniquets must be released eventually, and the fluid will again engorge the veins and pulmonary vessels, unless measures are taken to strengthen the heart (use of digitalis) or otherwise relieve the congestion (use of diuretics or direct venesection).

INTRAVENOUS GLUCOSE SOLUTION INFUSION

TO THE EDITOR—How much greater dehydrative effect will be produced by a 10% solution of glucose in distilled water than by a 5% solution, assuming that the rate of intravenous infusion is 50 to 75 drops per minute?

M.D., Illinois

ANSWER—In a study conducted a number of years ago, no dehydrative effect was produced by an injection of either 10% or 5% dextrose in water, about 3,000 cc being given intravenously at the rate of 300 to 500 cc per hour. With the 5% dextrose solution, 80% of the patients had glycosuria, but, on the average, only 3 gm of sugar per day were recovered in the urine. With the 10% dextrose solution, all the patients were glycosuric, but the urine sugar loss averaged only 18 gm per day. The latter solution is, therefore, of distinct value when more calories are needed, as in cases of undernutrition or damaged liver requiring support. The caloric value per day of the 10% solution was almost double that of the 5% solution, and for this reason it is valuable.

BRUCELLOSIS IN COWS

TO THE EDITOR—A farmer owns several cows, one of which lost a calf owing to Bang's disease. A veterinarian vaccinated the cow and quoted literature from a vaccine company stating that vaccination would cure the cow and that her milk would no longer be infectious. Is this true? I realize that vaccination may prevent other cows from acquiring a *Brucella* infection, but would it cure an active case? Would compulsory testing or compulsory vaccination before a cow can be sold be preferable as a state-wide measure?

James W. Davis, M.D., Leonard, Texas

ANSWER—If the cow in question was affected with brucellosis (Bang's disease), vaccination would be of little, if any, benefit to her. It would not destroy the infection in her system, and it would not make her milk less likely to be infectious. The noninfected animals in a herd usually can be protected against the infection by proper vaccination, but the dangerous feature in vaccinating cows is that, although they may have had a negative reaction, they may be in the incubative stage of the disease and would not be benefited. When tested, a vaccinated animal will show the same reaction as an infected animal, except that, after several months, the reaction titer of the vaccinated animal will gradually fall and eventually (after two or three years for an adult) may disappear. Testing plus vaccination of heifers before sexual maturity (at 6 to 8 months of age) constitutes the best program.

ADAMANTINOMA OF MANDIBLE

TO THE EDITOR—What is the best therapy for a slow growing adamantinoma of the mandible? Is x-ray or radium therapy indicated? What is the prognosis?

M.D., Indiana

ANSWER—Adamantinomas of the mandible are slowly growing, expansive tumors, which, if untreated, reach a large size and may eventually invade through the bone, the soft tissue of the cheek, or floor of the mouth. Repeated recurrence after inadequate treatment is common, but metastasis to lymph nodes or lungs is extremely rare. Histologically, the characteristic cells are stellate cells and cylindrical cells arranged to resemble the structures of the enamel forming organ, however, marked variations are seen, and often the pattern resembles that of a basal-cell, glandular, or epidermoid carcinoma. Neither these histological variations nor the predominance of a solid or cystic type of growth are of prognostic significance. The best treatment is surgical resection of small lesions with an adequate surrounding margin of healthy bone. For extensive lesions, resection of the jaw is necessary. X-ray or radium therapy is of little value either as a primary method of treatment or as a supplementary measure preoperatively or postoperatively. The only factor that seems to have any real influence on the final outcome is the radicality of the initial surgery. For patients treated by adequate resection, the prospect of cure is excellent.

ANNUAL PHYSICAL EXAMINATIONS

TO THE EDITOR—*I note in Queries and Minor Notes in THE JOURNAL Feb 21, 1953 page 695, the inclusion of a guaiac test on a stool specimen as part of the recommended and standard procedure in an annual physical examination. It is presumed that Dr Kistler, who made the inquiry is a private physician and is asking for guidance in the performance of annual physical examinations on office patients. While, if the candidate for such annual survey can be hospitalized and food and fluid intake controlled for at least 48 hours prior to the laboratory procedure, a guaiac test may have diagnostic significance, I would doubt that any inferences should be drawn from such a procedure when performed on an ambulatory office patient whose diet is unknown and uncontrolled. This point may lead to grievous errors in interpretation and to many scares for patients whose positive guaiac test can be accounted for on physiological grounds. Another possible cause for false positive results in the guaiac test is any bleeding in the upper or lower respiratory tracts or in the mouth, when the bloody residue has been swallowed.*

Albert Groves Hulett, M.D.
20 Hawthorne Ave
East Orange, N J

TO THE EDITOR—*In reply to a query in THE JOURNAL Feb 21, 1953 concerning laboratory procedures in the annual health examination, it was stated, 'If studies of blood chemistry are desired, nonprotein nitrogen and blood sugar determinations may be made, these should be obtained when the patient is in a fasting state.' Elevation of the fasting blood sugar level does not occur until diabetes is well developed. Because it is thought that detection and treatment in the early and symptomless stage of diabetes can prevent or retard further deterioration and the development of the degenerative complications the American Diabetes Association and its local branches are stressing the importance of early case detection as a preventive measure. The detection of minimal degrees of impairment of sugar tolerance requires the use of a loading test. The simplest form of such a test is a blood sugar level determination made during the absorptive period after a high carbohydrate meal. I prefer a standardized technique in which the determination is made one hour after a 100 gm carbohydrate breakfast, but for general purposes the blood sugar level may be determined from one half to one and one-half hours after any meal containing a liberal amount of starchy and sweet foods. A blood sugar value over 150 mg under these conditions means definite impairment of tolerance, and any value over 130 mg should call for repetition of the test at intervals for further evaluation. Such a test is more physiological and simpler than the customary glucose tolerance test and is a better guide to the degree of dietary restriction required to prevent hyperglycemia. When a blood sugar level determination is not feasible, glycosuria after such a loading meal may be used as a rough screening test. The urine test is less informative than the blood sugar test, since some subjects with elevated renal glucose thresholds will escape detection, but it is more informative than determination of the fasting blood sugar level with which all but well-developed cases of diabetes will be missed. One of these tests should be included in the annual health examination. While a nonprotein nitrogen level determination is seldom indicated in the absence of evidence or history of renal disease, it may be performed on the same sample of blood, since the preceding meal will not affect it significantly.*

Henry E Marks, M.D., Chairman
Committee on Diabetes Detection
New York Diabetes Association
121 E 60th St., New York 22

TO THE EDITOR—*In THE JOURNAL Feb 21, page 695, is a query concerning annual physical examinations and associated laboratory work. If the country were populated by unemployed laboratory technicians the advice would be splendid, unfortunately technicians are scarce and their time*

must be conserved. Particularly, I refer to the red blood cell count, which is considerably less accurate and more time consuming than the hemoglobin determination and is of no value in the face of a normal hemoglobin level. This is so evident that most hospitals do admission red blood cell counts only if the hemoglobin level is abnormal, thus utilizing skilled labor most effectively. I also doubt the value of routine leukocyte counts or differential counts in normal persons, because these so often reflect transient illnesses of no particular significance, of electrocardiograms except in older persons, and of guaiac tests on stools. To complete the roster, the fasting blood sugar level is not likely to yield useful information if the urine is free of sugar, nor is the nonprotein nitrogen level often elevated in persons with a negative history, normal urine, and normal blood pressure. It is advice of this kind that makes medical care more expensive but not more valuable.

Roy N Barnett, M.D.
Strawberry Hill Ave
Norwalk, Conn

Dr Barnett's letter was referred to the consultant who answered the original inquiry, and he replied as follows—Ed

In this consultant's opinion, the original query was presented as an honest desire on the part of the practitioner to meet his responsibility to his patient, said patient having presented him self to his doctor, wishing to know whether he is in good health or whether some early signs or symptoms of disease exist unknown to him. Such a case offers a distinct challenge to the conscientious physician and warrants the expenditure of time and such expense as may be indicated, for it is here, in the practice of preventive medicine, that the physician can frequently offer most to his patient. To attempt to answer this letter in detail would be futile. A few well known facts may suffice to justify my recommendations. 1. A normal hemoglobin level may mask an early macrocytic anemia. 2. A routine leukocyte count may disclose an unsuspected, significant leukocytosis or even leukemia, "transient illness" may or may not be significant, and if found its true diagnosis should be established. 3. Coronary artery disease is not the exclusive property of older persons, congenital lesions and damage from rheumatic fever may leave significant alterations in electrocardiographic patterns. 4. The presence of a high renal threshold is not rare, and, conversely, renal glycosuria is not rare, thus the routine urinalysis may lead to false presumptions. 5. A positive guaiac reaction on the stool or material from the examining finger following a digital examination may give the clinician the very clue needed to develop subsequently the diagnosis of an early gastrointestinal neoplasm. All these studies could be eliminated by the clinician, and the cost to the patient for the examination would subsequently be reduced, but the value received would be of like measure "Caveat emptor!"

DISINFECTION OF BLOOD-CONTAMINATED LANCETS

TO THE EDITOR—*I should be obliged if you would rectify an error that appeared in THE JOURNAL Sept 15, 1951, page 288. The statement is made that Dr A J Rhodes and I recommend the disinfection of syringes by immersion in chemicals. This is wrong, as the following references will reveal.*

The second reference advises boiling of syringes and refers to the worthlessness of the procedure of washing syringes in distilled water and storing them in spirit.

Rhodes A J, and van Rooyen, C. E. Textbook of Virology for Students and Practitioners of Medicine. New York: Thos Nelson & Sons, 1949, p 187.

Rhodes A J, and van Rooyen, C. E. Textbook of Virology for Students and Practitioners of Medicine, ed 2. Baltimore: Williams & Wilkins Company, 1953, p 292 and especially p 294.

van Rooyen C E and Rhodes A J. Virus Diseases of Man, ed 2. New York: Thos Nelson & Sons, 1948, p 1177.

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EARLY DIAGNOSIS OF PRIMARY MALIGNANT BONE TUMORS

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and

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Primary malignant bone tumor is a comparatively rare condition, as shown by a survey in Massachusetts¹ in which the incidence of bone sarcoma was about 1 in 100,000 of the population at a given time. Phemister² has stated that of all sarcomas, sarcoma of bone occurs most frequently, and according to the statistics compiled by Christensen³ the highest incidence of bone sarcoma is found in the 15 to 20-year-old age group.

As is the case with any malignant process, the sooner a definitive diagnosis of neoplasm of bone is made, the earlier adequate treatment can be instituted and, consequently, better results obtained. It is imperative, therefore, that the physician always have in mind the possibility of a primary malignant bone tumor, especially in view of the fact that the clinical picture of bone neoplasm is variable and does not offer a characteristic history or physical findings. Intermittent to continuous pain, particularly if it is present when the patient is at rest, is the most significant symptom and usually precedes any objective evidence of the new growth. Occasionally, when the lower extremity is involved, a limp will appear before there is any pain. The character of the pain varies from a recurrent, rheumatic type of discomfort to a relatively sudden, intense pain. When it has become severe enough to produce disability the patient usually seeks medical advice.

The evidence of trauma as a pathogenic factor remains uncertain, as pointed out by White and Elkin⁴ in a survey of 88 proved cases of primary malignant bone tumors. Sixty-four patients could recall no injury. In 24 persons, the injury appeared to be relatively trivial and of questionable relationship to the onset of bone disease. On the other hand, Coventry⁵ expressed the opinion that trauma, which so frequently occurs about the knee, may be a deciding factor in the production of malignant bone tumors, because in 75% of cases of osteogenic sarcoma seen at the Mayo Clinic the lesions were located either

in the lower end of the femur or in the proximal portion of the tibia and fibula.

The observations of clinical examination vary widely. In instances in which the tumor arises from the periphery of the underlying bone and grows rapidly, there may be definite local swelling with enlarged veins in the skin over the surface of the lesion. In a malignant bone tumor of more central origin, there is less evidence of swelling, and the tumor may not be discovered even by very careful palpation. Unless the new growth has been present for some time, the overlying soft parts usually are not adherent. These early, mild symptoms of pain and of minimal disability may account for the patient's delay in seeking medical advice. Once the patient has done so, however, the physician should regard persistent bone, joint, or muscle pain, in the absence of significant trauma, as a possible symptom of bone tumor and should institute further studies beginning with a roentgenogram of the affected area. Awareness of this possibility on the part of the examining physician will improve the prognosis as well as prevent the all too frequent diagnoses of arthritis, rheumatism, sprain, neuritis, and bursitis, with the subsequent long delay before a correct diagnosis is established.

Significant information is furnished by roentgenograms, not only of the bone or bones at the site of symptoms but also of the lungs if the initial films show a bone lesion. One of the most difficult diagnoses is that of distinguishing a primary malignant tumor of bone, such as Ewing's tumor (hemangioendothelioma), from an inflammatory process. This differentiation has become even more complex since the advent of the antibiotics, the use of which is considered to be the reason why osteomyelitis of the acute, fulminating type is now so rarely seen. Bone changes in acute osteomyelitis are not evident roentgenographically for 10 to 14 days after the onset of illness, but delay in the diagnosis has been

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Owing to lack of space, some of the bibliographic references have been omitted from THE JOURNAL and will appear only in the authors' reprints.

1. Massachusetts Department of Public Welfare, cited by Coley W B. *Treatment of Bone Sarcoma*, Cancer Rev 4: 425-437 (Oct.) 1929.

2. Phemister D B. *Cancer of the Bone and Joint*, J A M A 136: 545-554 (Feb 21) 1948.

3. White G and Elkin M. *Primary Malignant Bone Tumors: A Report of Ninety Three Cases Observed at Pondville Hospital 1928-1949*, New England J Med 245: 351-354 (Sept 6) 1951.

4. White G and Elkin M. *Primary Malignant Bone Tumors: A Report of Ninety Three Cases Observed at Pondville Hospital 1928-1949*, New England J Med 245: 351-354 (Sept 6) 1951.

5. Coventry M B. *The Differential Diagnosis of Malignant Bone Tumors*, Ann Surg 132: 888-898 (Nov) 1950.

appreciably reduced as a result of the soft tissue studies reported by Baylin and Glenn.⁶ They demonstrated that loss of intramuscular planes and loss of the fat shadow beneath the subfascial plane may appear as early as 24 hours after the first clinical symptoms. They further stressed the fact that edema of soft tissue is apparent throughout the length of the bone in acute osteomyelitis, whereas in tumor and also in trauma, edema is usually confined to localized areas. Traumatic lesions such as subperiosteal hematoma or myositis ossificans may be confused with a bone tumor. It is also important to distinguish a fracture that is the result of trauma from a pathological fracture subsequent to a preexisting bone neoplasm, particularly since any such bone tumor may result in a pathological fracture.

We believe that in the majority of cases of primary malignant bone tumors a correct diagnosis can be made on the basis of a careful history, complete physical examination, essential laboratory studies, and roentgenograms. The minimal laboratory examination should include urinalysis, estimation of hemoglobin concentration, complete blood cell count and differential, Wassermann reaction, erythrocyte sedimentation rate, and serum phosphatase level. On the other hand, we are equally certain that surgical biopsy should be performed on all patients before a decision is made regarding the type of treatment. In the majority of cases, needle biopsy is performed, and the microscopic appearance of the biopsy specimen is interpreted by pathologists who are experienced in the diagnosis of bone tumors. This technique is not aspiration biopsy but involves the use of a special needle that, as noted by Rix and Brooks,⁷ permits the excision of a tissue specimen large enough to be examined by standard laboratory procedures and, therefore, presenting no unusual problem in microscopic diagnosis. When there is a soft tissue mass overlying the bone and in many of the cartilaginous tumors, the Silvermann needle is effective, while with those tumors more centrally situated in the medullary area, a trephine needle, as described by Turkel and Bethell,⁸ is utilized. Under the fluoroscope, the tumor area is identified and the position of the needle point determined to make certain a specimen of the bone lesion is obtained. With this needle biopsy technique we have not observed resulting hemorrhage or evidence of seeding within the needle track. As soon as a plug of tissue is procured it is placed on a small circle of sterile filter paper and floated in 100 cc of Zenker's fluid to which 10 cc of glacial acetic acid has been added. This procedure fixes the specimen of tissue in one mass and so permits adequate microscopic examination. In an occasional instance when definitive tissue is not obtained, an open biopsy is performed and the wound carefully closed in layers without drains.

We have had no experience with arteriography as described by dos Santos,⁹ because our method of exami-

nation has proved so satisfactory, however, arteriograms could indicate the extent of the neoplasm by outlining the limits of vascular activity beyond the margin of cellular infiltration and could also be used to assess the effects of irradiation on malignant bone tumors.

It is important to remember, as emphasized by Coventry,⁵ that a completely accurate diagnosis of tissue section is not possible for several reasons: 1 The tumor may have been previously irradiated, and this therapy may cause change in the structure and appearance of the cells, as is so well demonstrated in cases of Ewing's tumor. 2 Previous removal of a biopsy specimen for study may have resulted in infection or hemorrhage, or both, which markedly confuse the microscopic picture. 3 The surgeon may not obtain a representative section of the tumor. 4 The pathologist may incorrectly interpret the appearance of the tissue.

The pathologist also provides valuable information in addition to a report on the type of tumor cell when he records that the tumor is of low-grade malignancy, relatively average, or even of high degree of malignancy. These data are significant factors in the decision as to the type of treatment, because, in a low-grade malignant condition, serious consideration can be given to a more conservative type of operation than would be contemplated if the pathologist reported a tumor of average or high degree of malignancy. Meyerding and Valls¹⁰ state that life expectancy and results of treatment are influenced by the grade of malignancy, and we agree that the prognosis for five-year survival is considerably better in the presence of low-grade malignant tumors.

CLASSIFICATION OF PRIMARY MALIGNANT TUMORS OF BONE

Osteogenic Sarcoma—Jaffe¹¹ believes that the group of osteogenic sarcomas should be subdivided into recognized components, such as true osteogenic sarcoma, fibrosarcoma, and chondrosarcoma. This view is supported by Coley and Harrold,¹² as both fibrosarcoma and chondrosarcoma metastasize at a later stage of the disease than does true osteogenic sarcoma. From the standpoint of follow-up study, however, all of these forms can be classified under one broad, general heading of osteogenic sarcoma. In the osteogenic group, as indicated by Hanelin and Robbins,¹³ there is usually evidence of a lesion, which may be either destructive or sclerotic, within the bone. Fibrosarcoma may be evident as an area of destruction in cortical bone with unossified soft tissue extension, while chondrosarcoma often begins as a central lesion, grows slowly, and, whether central or otherwise, tends to retain its original growth tendency. Furthermore, osteogenic sarcoma and fibrosarcoma usually occur in persons in the 10 to 25-year-old age group, whereas chondrosarcoma is oftener detected in persons in the 25 to 50-year-old age group.

Ewing's Tumor—Ewing's tumor continues to be a particularly difficult diagnostic problem. While syphilis has been called a great imitator of constitutional disease, as pointed out by McCormack, Dockerty, and Ghormley,¹⁴ Ewing's sarcoma can be as aptly characterized as the great imitator of bone pathology. Many conditions, both neoplastic and inflammatory, are known to produce changes indistinguishable roentgenographically from

7 Rix R. R. and Brooks S. M. Needle Biopsy in Bone Lesions. *New England J. Med.* 246: 373-375 (March 6) 1952.

8 Turkel H. and Bethell F. H. Biopsy of Bone Marrow Performed by New and Simple Instrument. *J. Lab. & Clin. Med.* 28: 1246-1251 (July) 1943.

11 Jaffe H. L. Tumors of the Skeletal System. *Pathological Aspects*. *Bull. New York Acad. Med.* 23: 497-511 (Sept.) 1947.

13 Hanelin, J. and Robbins L. L. *Medical Progress: Radiology in Bone Pathology*. *New England J. Med.* 245: 20-27 (July 5) 1951.

14 McCormack, L. J., Dockerty M. B. and Ghormley R. K. Ewing's Sarcoma. *Cancer* 5: 85-99 (Jan.) 1952.

those evoked by Ewing's tumor. Accurate histological evaluation of Ewing's tumor is complicated further by (1) the rarity of the neoplasm, which has made it almost impossible for one person to study and compare a large number of lesions, and (2) employment of therapeutic irradiation as a basic factor of diagnosis in lieu of surgical biopsy. When this latter course has been adopted, and regrowth of the neoplasm follows irradiation, the cytological picture is often so altered as to make it almost unrecognizable. The majority of these tumors are encountered in patients from 12 to 19 years old. McSwain, Byrd, and Inman¹⁵ reported 20 Ewing's tumors in a group of 192 primary neoplasms of bone. Of these 20 patients, only 3 lived five years or more without a recurrence. In a further study, they found a 9% survival rate in an analysis of 565 cases of Ewing's tumor collected from previously published reports.

Hemangioendothelioma usually occurs in the middle of the shaft of a long bone, begins in the medullary cavity and destroys bone, but its cells never produce bone. On nearing the surface, it frequently stimulates the periosteum to form layers of new bone, commonly referred to as "onion skin" formation. This is not diagnostic. When an unequivocal diagnosis is made, it is our belief that roentgen therapy without severe injury to adjacent normal tissue offers the best prognosis, particularly since the advent of rotational 2 million volt treatment. The therapy is administered not only to the original bone lesion but also to the regional lymph nodes, as well as to the mediastinum and the lungs.

Multiple Myeloma—The majority of multiple myelomas occur in adults over 50 years old. The possibility of this tumor should always be suspected in elderly patients who have vague abdominal complaints and unexplained back pain. The roentgenograms frequently show a degree of osteoporosis, and there may be a compression fracture of an involved vertebra. The alkaline phosphatase and erythrocyte sedimentation rates are elevated. Definitive diagnosis can be made by biopsy of the bone marrow in many of these cases. As noted by Bayrd and Heck,¹⁶ multiple myelomas progress slowly but steadily. The prognosis varies markedly in proportion to the type of plasma cells found in the bone marrow. If the cells are of adult type, the disease may prove to be chronic and fatal only after some months or even years. On the other hand, if cells are young and poorly differentiated the disease is rapidly progressive and fatal. No specific therapy has been found to control this tumor, although in recent years the use of urethan has proved helpful, especially in the more chronic type of involvement.

Giant Cell Tumor—Giant cell tumor is now recognized as a true tumor of bone and is sometimes malignant. It occurs most frequently in patients between the ages of 20 and 30 years. The tumor usually extends to the end of a long bone, and roentgenograms show an expansile destruction or "soap bubble" type of lesion. Surgery is the treatment of choice, but if the lesion is not accessible, roentgen therapy is of definite value. Leucutia and Cook¹⁷ studied 77 cases of benign giant cell tumor and state that 7 of these tumors (9%) underwent malignant change. In an extensive survey of the literature, they found that malignant degeneration of giant cell tumor

occurred in a limited number of cases (10 to 15%) regardless of the type of treatment given.

Reticulum Cell Sarcoma—Reticulum cell sarcoma is usually a solitary lesion most frequently found in long bones but without significant localization in a given bone, as pointed out by Sherman and Snyder.¹⁸ Destruction of bone is more evident than growth changes, the bone cortex being destroyed without evidence of expansion or thickening. The lesion if untreated grows rapidly but retains its initial characteristics. Coley, Higinbotham, and Groesbeck,¹⁹ in a detailed study of 37 cases of proved primary reticulum cell sarcoma of bone, found that the disease was commoner in males, three-fourths of whom were in the second, third, and fourth decades. The course of this tumor is less destructive than that of any other malignant tumor of bone, and the roentgenologic evidence of a high degree of response to irradiation is constant. Furthermore, accessible metastases also respond to irradiation therapy, especially when the tumor spreads into regional lymph nodes.

CONCLUSIONS

The physician who sees a patient with persistent bone, joint, or muscle pain, especially when the involved part is at rest, should always keep in mind the possibility of a primary malignant tumor of bone. This possibility demands evaluation of a thorough history, careful clinical examination, laboratory studies, roentgenograms, and biopsy. The combined efforts of the surgeon, the roentgenologist, and the pathologist are necessary in order that the most effective therapy may be employed. Every effort must be made to reduce markedly the time lag between the initial consultation and the time when a bone lesion is suspected, since it is obvious that the earlier the diagnosis is made and proper treatment instituted the more assurance there is of a favorable outcome.

605 Commonwealth Ave (Dr Haggart)

16 Bayrd E D and Heck F J. Multiple Myeloma. Review of 83 Proved Cases. J A M A 133: 147-157 (Jan. 18) 1947.

17 Leucutia T and Cook J C. Malignant Degeneration of Benign Giant Cell Tumor of Bone. Am J Roentgenol 62: 685-706 (Nov.) 1949.

19 Coley B L, Higinbotham N L, and Groesbeck, H P. Primary Reticulum-Cell Sarcoma of Bone. Summary of 37 Cases. Radiology 55: 641-658 (Nov.) 1950.

Disseminated Lupus Erythematosus—Acute disseminated lupus erythematosus is a systemic disease in which anatomic lesions are found predominantly in the kidneys, heart, spleen, and lungs. Any organ may be involved, particularly in its vascular or supporting components. Although involvement of collagen and intercellular ground substance plays an important part in the development of many of the lesions, cellular changes, particularly in the kidneys, may occur, run their course and lead to death without demonstrable involvement of the collagen. Consequently, in the present state of knowledge it would probably be unwise to circumscribe the disease by the term "diffuse collagen disease." The occasional occurrence, in cases of acute lupus erythematosus, of glomerular lesions resembling those of glomerulonephritis and of vascular lesions resembling those of periarteritis nodosa may be suggestive but not unequivocal evidence of a similar pathogenesis for these diseases. Finally, although the appearance of many of the lesions of lupus erythematosus resembles hyperergic or allergic inflammatory reactions, one is not justified on the basis of morphologic evidence alone to consider lupus erythematosus as a manifestation of hypersensitivity.—A H Baggenstoss, M D, Visceral Lesions in Disseminated Lupus Erythematosus, *Proceedings of the Staff Meetings of the Mayo Clinic*, Oct. 22, 1952.

ISONIAZID AND STREPTOMYCIN IN THE TREATMENT OF PULMONARY TUBERCULOSIS

A PRELIMINARY REPORT

Capt Forrest W Pitts, Col Carl W Tempel, Major Frank L Miller, Capt James H Sands
 Capt Martin J Fitzpatrick, (MC), U S Army
 and
 Orman Weiser, B S, Denver

Clinical studies with isoniazid and related compounds have demonstrated antituberculous activity of high magnitude and thus confirmed results of *in vitro* and *in vivo* investigations. Particularly significant are the evaluations recorded by Selikoff, Robitzek, and Ornstein¹ on 166 patients with pulmonary and extra pulmonary tuberculosis treated with isoniazid or iproniazid alone, and those of Clark and co-workers² on 14 patients with milary and meningeal tuberculosis treated with isoniazid alone. These authors suggest that preliminary studies with isoniazid and iproniazid reveal therapeutic efficacy equal or superior to that observed with streptomycin employed singly.

Treatment of 61 patients with moderately or far-advanced pulmonary tuberculosis at Fitzsimons Army Hospital with 150 or 300 mg of isoniazid alone daily for four to eight months resulted in observations essentially in accord with the views expressed above.³ Symptomatic response was uniformly favorable and was supported by objective improvement as measured by serial chest roentgenograms in the majority of patients who had not had previous drug therapy. There was almost no drug toxicity. Fifty-three per cent of the patients in this series yielded sputum negative on culture after four months of isoniazid therapy, 67% of patients with positive cultures were found to harbor tubercle bacilli totally resistant to 1 μ g of isoniazid per milliliter, similarly, 32% were completely resistant to 5 μ g of isoniazid per milliliter.

Previous experience with streptomycin, para-aminosalicylic acid, viomycin, and oxytetracycline (Terramycin) has established that the combination of two effective antimicrobial agents produced additive therapeutic effect as well as delayed and decreased incidence of bacterial resistance.⁴ Accordingly, the combination of isoniazid and streptomycin was a logical and, as experience has borne out, desirable approach. This preliminary report is an evaluation of 99 patients treated with 150 or 300 mg of isoniazid daily combined with 2 gm of streptomycin every third day for four months. Ninety-seven of these patients have received drug therapy for six months and 77 have been observed for eight months. For

comparative purposes, data are presented on 98 patients who received 2 gm of streptomycin every third day for eight months combined with 12 gm of para-aminosalicylic acid daily.

MATERIAL AND METHODS

The 197 patients treated with the combined regimens had been hospitalized recently and had received no previous antituberculous therapy. All had moderately or far advanced pulmonary tuberculosis and cultures positive for tubercle bacilli that were sensitive to the drugs being studied prior to therapy. Streptomycin sulfate was administered in a dosage of 1 gm intramuscularly twice daily every third day to all patients. Ninety-eight patients received 4 gm of sodium para-aminosalicylate in solution three times daily, 47 patients received 150 mg of isoni-

TABLE 1—Background Factors on 197 Patients in the Study

Factor Evaluated	Regimen	
	SM INH [*]	SM PAS [†]
No. of Patients	99	98
Age Yr		
Range	16-61	14-77
Average	28	30
Race		
White	73	77
Nonwhite	26	21
Extent of Disease		
Moderately advanced	64	52
Far advanced	25	46
Unilateral	48	45
Bilateral	51	50
Cavitary	74	70
Noncavitary	25	28
Type of Disease		
New exudative and caseous pneumonic	86	78
Old fibrocaseous	1	4
Mixed new and old	12	16

* SM INH represents streptomycin and isoniazid therapy.
[†] SM PAS represents streptomycin and para-aminosalicylic acid therapy.

azid daily in three divided doses, and 52 patients received 300 mg of isoniazid daily. No other therapy except bed rest was employed during the first four months of drug therapy.

The background factors are presented in table 1. The two series consisted predominantly of young white men with recent exudative, caseous pneumonic, and cavitary disease. The two groups were essentially similar except for fewer patients with far advanced disease in the group receiving streptomycin and isoniazid therapy.

Roentgenograms of the chest were obtained at monthly intervals and evaluated by a jury of no less than three physicians. The response was defined as marked, moder-

From the Medical Service and Research and Development Branch, Fitzsimons Army Hospital.

Read at the Sixth Clinical Session of the American Medical Association, Denver, Dec. 2, 1952.

1. Selikoff I J, Robitzek E H, and Ornstein G G. Treatment of Pulmonary Tuberculosis with Hydrazide Derivatives of Isonicotinic Acid. *J. A. M. A.* 150: 973 (Nov. 8) 1952.

2. Clark C M, and others. Isoniazid (Isonicotinic Acid Hydrazide) in the Treatment of Milary and Meningeal Tuberculosis. *Am. Rev. Tuberc.* 66: 391 (Oct.) 1952.

3. Tempel C W. Present Status of Specific Drug Treatment of Tuberculosis. *J. A. M. A.* 150: 1165 (Nov. 22) 1952. Pitts F W and others. Isoniazid Therapy in Pulmonary Tuberculosis: A Preliminary Report. *U. S. Armed Forces Med. J.* 4: 1 (Jan.) 1953.

ate or slight improvement, no change, and worsening. Marked improvement referred to complete or almost complete resolution. Minimal degrees of resolution were graded as slight improvement. Worsening was defined as any degree of extension of the disease in any part of the roentgenogram even if other areas were improved. The presence of a cavity was recorded if the outline could be clearly seen on posteroanterior or lordotic films, but these findings were considered separately from the evaluation of the infiltration.

Sputum or gastric contents were cultured on every patient at intervals of two weeks on Petragnani's medium. All positive cultures were subcultured on American Trudeau Society Committee mediums containing 0, 1, 10, and 100 μ g of streptomycin per milliliter, 0, 1, 10, and 100 μ g of para-aminosalicylic acid per milliliter (for those patients receiving para-aminosalicylic acid), and 0, 0.2, 1, and 5 μ g of isoniazid per milliliter (for those patients receiving isoniazid). If growth in the tube containing 10 μ g of streptomycin per milliliter, 10 μ g of

weight during the first four months of therapy in contrast to 47% of the patients receiving streptomycin and para-aminosalicylic acid (chart). It is believed that the weight gain reflects over-all improvement in the underlying disease and that the superiority noted in the streptomycin-isoniazid series is partly accounted for by the absence of anorexia, a significant factor associated with para-aminosalicylic administration.

Röntgenographic Evaluation—Comparison of the 120, 180, and 240 day chest roentgenograms with those taken prior to drug therapy is depicted in table 2. The over-all response is unusually favorable, which is indicative of the type of disease under therapy, that is, predominantly exudative and caseous pneumonic disease of recent origin in young persons whose general condition is good. Noteworthy is the absence of roentgenographic worsening. The degree of improvement and loss of cavity from view in those patients receiving streptomycin and isoniazid therapy slightly surpassed that observed in patients on the streptomycin and para-aminosalicylic acid

TABLE 2—Roentgenographic Evaluation of Intermittent Streptomycin Therapy Combined with Daily Administration of Para-Aminosalicylic Acid or Isoniazid

Factor Evaluated	Regimen * and Duration of Therapy					
	4 Mo		6 Mo		8 Mo	
	SM INH	SM PAS	SM INH	SM PAS	SM INH	SM PAS
No. of Patients	99	98	97	98	77	98
Improvement						
Slight	55	62	28	44	18	34
Moderate	41	32	60	40	40	44
Marked	0	1	7	12	13	18
All Degrees	96	95	95	96	75	96
No Change	8	8	2	2	2	2
Degree of Worsening	0	0	0	0	0	0
Cavity Lost From View	29 of 75 (39%)	13 of 70 (19%)	48 of 76 (63%)	82 of 70 (46%)	41 of 60 (68%)	41 of 70 (59%)

* See footnote to table 1

para-aminosalicylic acid per milliliter, or 1 μ g of isoniazid per milliliter equaled the growth on the control tube, the organisms were arbitrarily considered resistant to the given antimicrobial agent. All cultures were sensitive to these concentrations prior to institution of drug therapy.

Patients were observed clinically for symptomatic improvement and drug toxicity. Audiogram and caloric vestibular tests were performed prior to, during, and on completion of therapy in both series. Laboratory studies were accomplished prior to drug therapy and repeated at the following intervals on all patients receiving isoniazid therapy: urinalysis weekly, complete blood count, hematocrit reading, and sedimentation rate determination every two weeks, blood urea nitrogen determination every 60 days, 15 minute phenolsulfonphthalein excretion test after 120 days, and cephalin-cholesterol flocculation and sulfobromophthalein (Bromsulphalein) tests every 30 days.

RESULTS

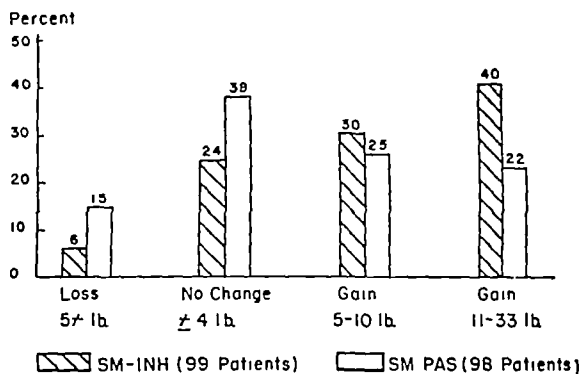
Symptomatic Response—All patients on both regimens manifested symptomatic improvement as measured by alterations in temperature, severity of cough, and sputum volume. Seventy per cent of the patients receiving streptomycin and isoniazid gained 5 or more pounds in

regimen, the drug therapy hitherto regarded as the program of choice in the treatment of tuberculosis.

Bacteriological Evaluation—Cultural negativity was present in 86 to 94% of the patients receiving either antimicrobial regimen four or more months (table 3). All of the patients treated with streptomycin and isoniazid are still receiving drug therapy, but 61 of the 98 patients in the group treated with streptomycin and para-aminosalicylic acid have been followed for two to eight months after therapy was discontinued. Bacteriological relapse has occurred in 12 of the latter group.

There were 27 patients who had intermittently positive sputum or gastric cultures in the interval from the fourth to eighth month of streptomycin and para-aminosalicylic acid therapy and following cessation of therapy. Sensitivity studies are pending on specimens from 2 patients, organisms from 17 are known to be sensitive to both drugs and 8 harbor tubercle bacilli resistant to either or both antimicrobial agents. Four patients yielded organisms resistant to 100 μ g of streptomycin per milliliter and 2 had organisms resistant to 100 μ g of para-aminosalicylic acid. Spontaneous reversion to para-aminosalicylic acid-sensitive organisms (1 μ g per milliliter) occurred in one instance. The remaining 2 patients had organisms

resistant to 100 μ g of streptomycin per milliliter and 10 μ g of para-aminosalicylic acid per milliliter. Thus, the known incidence of drug resistance for this period of time is 8% of the entire series, or 32% of the patients with positive cultures and sensitivity studies. Emergence of drug resistant organisms paralleled the duration of



Changes in the weight of 197 patients treated for four months with para-aminosalicylic acid or isoniazid daily and streptomycin intermittently

therapy. All 14 positive cultures obtained during the fourth month of drug therapy were sensitive to 10 μ g of streptomycin and para-aminosalicylic acid per milliliter, 2 of 7 cultures are known to be resistant after six months of treatment, and 8 of 19 cultures had drug resistant organisms after eight months of streptomycin and para-aminosalicylic acid therapy (table 3).

Of the 11 patients with positive cultures after four months of streptomycin and isoniazid therapy, 6 had cultures sensitive to both drug agents, 2 had cultures resistant to 5 μ g of isoniazid per milliliter, 1 had organisms resistant to 1 μ g of isoniazid per milliliter, and 2 had cultures resistant to 100 μ g of streptomycin per milliliter. None were resistant to both drugs. The incidence of streptomycin or isoniazid resistance after the fourth month of treatment is 5% for the entire series, or 45% of the patients with positive cultures (table 3). An evaluation of streptomycin and isoniazid resistance beyond the fourth month of therapy is not possible at this time because of the high incidence of negative cultures. There appears to be a trend to more frequent and rapid development of resistance with a streptomycin and isoniazid regimen than with the streptomycin and para-aminosalicylic acid regimen, however, this has not been a problem since resistance has developed in such a small number of patients receiving streptomycin and isoniazid. Furthermore, a third drug, para-aminosalicylic acid, was available for use. Clinical or roentgenographic relapse was not observed in any of the patients whose organisms were found to be drug resistant.

Isoniazid Toxicity—Clinical toxicity has been minimal in the dosages employed in this study. In two patients drug fever developed with temperatures up to 102 F, in one patient peripheral neuritis developed, and another had an epileptiform convulsion that necessitated discontinuance of isoniazid therapy; these cases are not included in the clinical or bacteriological evaluations. Hyperreflexia occurred in approximately 5% of the series. A few patients complained of nervousness and insomnia, which were readily controlled with small doses of phenobarbital. Increased muscular irritability and weakness

were noted transiently in four patients. Although disturbance of micturition, dryness of the mouth, euphoria, and increased sensitivity to sympathomimetic drugs have been recorded by others, none was noted in this group of patients.

An unexplained death occurred in one patient after 13 days of therapy with 300 mg of isoniazid daily combined with 2 gm of streptomycin every third day.

A 25-year old white man was first hospitalized elsewhere for pulmonary tuberculosis in 1948. An electrocardiogram at this time revealed a left bundle branch block, but there was no evidence by history or physical examination to indicate cardiac disease. A two stage, seven rib, thoracoplasty was performed on the left in January, 1949, and he was discharged from the hospital in November, 1949, with inactive disease. Reactivation of the disease in the upper lobe of the right lung with evidence of cavitation led to his hospitalization at Fitzsimons Army Hospital on Aug 6, 1952. The sputum was positive for tubercle bacilli. An electrocardiogram revealed a left bundle branch block, but there was no evidence suggestive of cardiac disease by history or physical examination. Therapy consisted of bed rest and administration of streptomycin and para-aminosalicylic acid. Para-aminosalicylic acid therapy was discontinued on Dec 29, 1952, and 100 mg of isoniazid three times daily was substituted. He was receiving no other drug therapy. On the evening of Jan 10, 1953, he suddenly complained of a "peculiar feeling" in his chest. This was followed by cyanosis, several gasps for breath, and death within several minutes. It was thought that he had sustained an acute pulmonary embolism, but postmortem examination did not confirm this belief or suggest the actual cause of death. The heart and all the vessels appeared to be normal, and no abnormality was found except active tuberculosis confined to the upper lobe of the right lung and inactive tuberculosis in the left lung. In retrospect, it is believed that cardiac arrest was the cause of death, but it is not known whether or not isoniazid therapy was a contributing or etiologic factor.

TABLE 3—Bacteriological Evaluation of Intermittent Streptomycin Therapy Combined with Daily Administration of Para-Aminosalicylic Acid or Isoniazid

Factor Evaluated	Regimen * and Duration of Therapy					
	4 Mo		6 Mo		8 Mo	
	SM INH	SM PAS	SM INH	SM PAS	SM INH	SM PAS
No. of Patients	99	98	93	98	53	98
Negativity	83 (83%)	84 (86%)	87 (94%)	90 (92%)	50 (94%)	80 (82%)
Positivity	11	14	6	8	3	8 + 12†
Sensitivity						
SM INH	0		2		0	11
SM PAS		14		5		
Resistance	5	0	2	2	1	8
10 μ g SM/ml	2	0	0	1	0	4
10 μ g PAS/ml		0		1		*
1 μ g INH/ml	3		2		1	
SM and INH	0		0		0	
SM and PAS		0		0		0
Sensitivity studies pending	0	0	2	1	2	1

* See footnote to table 1.

† Eight of 98 patients had positive cultures during the eighth month of drug therapy. Of the remaining 90 patients 61 have been followed 2 to 8 months after SM PAS therapy was discontinued. Bacteriological relapse occurred in 12 patients (20%). Thus cultures from 20 patients were available for sensitivity studies.

Laboratory evaluation of the renal, hematological, and hepatic systems has revealed minor and transient abnormalities. Table 4 summarizes laboratory toxicity studies noted in 85 patients who received 150 or 300 mg of isoniazid daily for 180 days, either alone or combined with intermittent streptomycin therapy. Transient al-

buminuria, which did not exceed a grade of 1+, was common in 1 to 6 of the 24 urinalyses performed on each patient during the first six months of drug therapy. Similarly, low-grade cylindruria and occasional red blood cells appeared in the urine at infrequent intervals. No

TABLE 4—Signs of Toxicity Observed in Laboratory Tests in Eighty-Five Patients Treated 180 Days with Isoniazid

Factor Evaluated	No. of Patients	%
1. Renal Effects*		
A Findings on Urinalysis		
1 Albuminuria	70	81
a Trace to 1+	70	82
b 2+ or greater	0	0
c Present in 1-6 specimens	67	78
d Present in 7-24 specimens	3	4
2 Cylindruria	41	48
a Present in 1-6 specimens	41	48
b Present in 7-24 specimens	0	0
3 Red Blood Cells	57	67
a Present in 1-6 specimens	53	62
b Present in 7-24 specimens	4	5
B Blood urea nitrogen retention	0	0
C Diminished phenolsulfonphthalein excretion (15 min)	0	0
2. Hepatic Effects		
A Cephalin-cholesterol flocculation of 8-4+ (transient)	3	4
B Sulfobromophthalein retention (transient)	18	21
1 5-10%	14	17
2 11-20%	4	4
3 More than 20%	0	0
3. Peripheral Blood Findings		
A Anemia leukopenia or agranulocytosis	0	0
B Eosinophilia (transient)	64	75
1 5-10% of total white cells	50	65
2 11-20% of total white cells	9	10

patient had abnormal retention of blood urea nitrogen and renal function remained normal as measured by the 15 minute phenolsulfonphthalein excretion test. Transient sulfobromophthalein retention occurred in 18 patients (21%) and transiently abnormal cephalin-cholesterol flocculation tests were observed in 3 (4%) of patients treated six months. These abnormalities appeared only once or twice in any given patient without any history or physical examination to confirm them. Laboratory error was suspected, but repeated studies verified the initial abnormality reported. Drug therapy was continued without modification in these patients in spite of laboratory evidence indicating disturbance of hepatic function, and spontaneous return to normal occurred in all patients. There was no disturbance of the peripheral blood cells except for low grade and transient eosinophilia (5 to 18% of total white blood cell count) in the majority of the patients.

Streptomycin Toxicity—Fifty patients have been evaluated by serial audiograms and ice water vestibular function tests during eight months of intermittent streptomycin therapy (table 5). All received streptomycin sulfate in a dosage of 2 gm every third day for six months followed by 1 gm every third day for two months. Evidence of eighth cranial nerve toxicity was observed in 16 patients (32%) but has proved to be predominantly transitory in all following cessation of therapy. Abnormalities in the audiogram appeared most frequently in

the higher tones (4,096 and 8,192 cycles per second) of hearing and in vestibular function. A striking correlation of frequency and severity of ototoxicity with the age of the patient was readily apparent. Seven of eight patients over 50 years of age had some degree of eighth cranial nerve damage, of seven patients who had marked toxicity, five were more than 50 years old. Preexisting auditory disease also appeared to be a factor in the severity of ototoxicity.

COMMENT

This study is a preliminary report on long-term regimens employing intermittent streptomycin therapy combined with daily administration of isoniazid or para-aminosalicylic acid. Limited data for evaluation are available for only eight months of drug treatment, but at this point the comparison partially favors the combination of streptomycin and isoniazid (chart and table 2). The streptomycin-isoniazid regimen appears to be somewhat more efficacious from a therapeutic standpoint, and toxicity to the new regimen has not been a frequent problem to date. Isoniazid is more easily administered than para-aminosalicylic acid, since fewer tablets are required and gastrointestinal distress is completely lacking. There is clear-cut preference for streptomycin and isoniazid by the patient and staff alike when the factors of patient acceptance and ease of administration for prolonged periods are considered. Bacterial resistance has been minimal after four months of either drug regimen and preliminary studies suggest that little difficulty will be encountered with longer periods of treatment. Complete evaluation for 8 to 12 months or more will be required, however, for final assessment of the resistance factor.

There did not appear to be any difference in the therapeutic efficacy of 300 mg of isoniazid daily and 150 mg daily. The low magnitude of drug toxicity encountered, however, employing 3 to 6 mg per kilogram of body weight, indicates that successively higher dose ranges may be investigated with safety. Optimum dosage schedules for isoniazid are yet to be determined.

TABLE 5—Evaluation of Eighth Cranial Nerve Toxicity Following Streptomycin Sulfate Therapy in Fifty Patients Treated for 240 Days

Degree of Damage*	Audiogram		Caloric Vestibular Function Test (Ice Water)	Total No of Abnormal Tests	Total No of Patients
	512-2048 Cycles/Sec. (Speech Range)	4096-8192 Cycles/Sec. (High Tones)			
Slight	3	7	3	13	6
Moderate	1	1	2	4	3
Marked	3	3	5	11	7
Total	7	11	10	28	16

* The following criteria were used for evaluation of the results of audiographic and vestibular function tests: with hearing loss of less than 10 db and nystagmus in 90 to 120 seconds no damage; with 11 to 20 db loss and nystagmus in 80 to 75 seconds slight damage; with 21 to 30 db loss and nystagmus in 74 to 60 seconds moderate damage; and with more than 30 db loss and nystagmus in 49 or fewer seconds marked damage.

On the basis of studies made to date, it can be said that the combination of intermittent streptomycin and daily isoniazid therapy represents a promising drug program for the treatment of pulmonary tuberculosis. The evidence, however, does not indicate that such a regimen of

antituberculous drugs is definitive in a curative sense, and, as with other regimens, the need for bed rest, collapse measures, and excisional surgery continues to exist. The importance of this observation is well illustrated by roentgenographic evidence of cavity closure (table 2). It is noted that cavitation was still present after six months of therapy in 54% of the patients receiving streptomycin and para-aminosalicylic acid and 37% of the group receiving streptomycin and isoniazid. Under the most favorable conditions, cavitation persists in 41% of the cases even after eight months of streptomycin and para-aminosalicylic acid therapy. Furthermore, one-fifth of all patients who completed eight months of streptomycin and para-aminosalicylic acid therapy had a bacteriological relapse following cessation of drug therapy.

Relapse following definitive drug therapy may be related to duration of treatment. No studies are available to clearly define the desired duration of drug administration, but present experience leads us to infer that relief from symptoms, sputum conversion, stability of lesions, and cavity closure as visualized by serial chest roentgenograms for a period of three to six months is the desired objective. This would mean continuous drug therapy to the stage of arrested or inactive disease as defined by the 1950 National Tuberculosis Association Diagnostic Standards.

SUMMARY AND CONCLUSIONS

Data are presented on 99 patients with moderately or far advanced pulmonary tuberculosis treated four months with 150 or 300 mg of isoniazid daily combined with 2 gm of streptomycin every third day. Ninety-seven of these patients have been observed for six months and 77 for eight months. A comparative evaluation of 98 patients whose disease was similar in extent and nature treated for a period of eight months with 2 gm of streptomycin every third day and 12 gm of para-aminosalicylic acid daily is included. The dosage of streptomycin was reduced to 1 gm every third day after the sixth month in all patients. Isoniazid and streptomycin toxicity was minimal in extent. The optimum dosage of isoniazid has not yet been determined, and use of larger doses is currently being studied, however, there did not appear to be any difference in therapeutic response between the groups receiving 150 mg and 300 mg of isoniazid daily. Though the response to therapy was favorable in both groups, this preliminary evaluation favored streptomycin combined with isoniazid on the basis of symptomatic response, weight gain, roentgenographic clearing, and cavity closure. A true assessment of the value of this regimen, however, must of necessity be based on results obtained in a larger group of patients treated for prolonged periods of time.

IMPACT OF MODERN THERAPY ON PULMONARY TUBERCULOSIS IN A LARGE MUNICIPAL HOSPITAL

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Remarkable changes in the therapy of pulmonary tuberculosis have occurred in recent years because of the development of chemotherapy, major chest surgery, the swing from pneumothorax to pneumoperitoneum, and the use of antibiotics. At the same time, there has been some change in the type of patient, from the younger to the older age groups. In a short period of time, these changes have altered the prognosis of tuberculosis by a phenomenal degree. Institutional atmosphere has been converted from hopeless resignation associated with the predominant purpose of segregation to one of encouragement associated with an aggressive therapeutic attack, particularly in general hospitals with large tuberculosis units. It is the purpose of this paper to describe the changes in management and over-all results during the past 15 years in the tuberculosis wards of the Philadelphia General Hospital. The situation today is contrasted whenever possible with the situation 15 years ago at this institution as it was reported by Epstein and Hetherington.¹

CHANGES IN AGE, RACE, AND SEX

Since the prognosis of tuberculosis varies with age, race, and sex, the distribution of these factors in consecu-

tive discharges (including deaths) has been compared for the years of 1937 and 1952. As table 1 shows, there has been a great increase in the proportion of Negro women hospitalized but no significant change in the proportion of Negro men. There also has been a large decrease in the number of white patients hospitalized, both men and women. Whereas the largest group of patients used to be white men, the largest group is now Negro women. The race and sex distribution is correlated with the mortality rate in order to evaluate the influence of these factors. There has been a marked, over-all drop in the mortality rate since 1937. In that year, the mortality rate was highest in Negro patients and lowest in white women. The greatest drop in mortality has occurred in the Negro patients, especially the Negro women, and the least drop has occurred in white men. These changes are important in the evaluation of modern therapy. Negro patients used to have a much poorer prognosis than white patients, they now have a slightly better prognosis while under hospital care. The probable explanation for this is that acute exudative tuberculosis is more apt to develop in Negro patients, especially Negro women, than in white patients, and it is this type of lesion that responds best to antimicrobial therapy.

The age distribution of samples of consecutive discharges for both races and sexes is shown in figures 1 and 2. These curves are similar to curves for all the patients discharged in each year. The total number of

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1 Epstein H and Hetherington, H. W. Problems in the Treatment of Advanced Tuberculosis in a Municipal Hospital Based on Analysis of Course of Disease and Results of Pneumothorax Treatment, J A M A 114: 723 (March 2) 1940.

patients in the sample from 1937 is a little larger (372) than in the sample from 1952 (303), but a comparison of the age curves shows that there has been a flattening of the curve in the earlier decades in each group except that of the Negro woman. White patients of both sexes

TABLE 1—Race and Sex Distribution and Mortality Rates of Consecutive Discharges in 1937 and 1952

	1937			1952		
	No of Cases	% of Total	Mortality %	No of Cases	% of Total	Mortality %
Negro men	220	21	67	91	20	22
White men	303	33	40	123	27	27
Negro women	107	10	64	190	40	13
White women	220	22	30	60	14	18
Total or average	1 044*	100	41	470	100	19

* Figures do not include patients who transferred to other institutions

and Negro men, therefore, tend to be older now, while the Negro women patients continue to be as young as they were 15 years ago. Since acute tuberculosis is seen oftenest in the young Negro woman and since this type of tuberculosis responds best to antimicrobial therapy, it is understandable that the greatest decrease in hospital mortality has occurred among Negro women.

EXTENT OF DISEASE

The prognosis of pulmonary tuberculosis varies with the extent of disease. A series of patients discharged in 1952 is compared with the series reported for the years 1935 to 1937 by Epstein and Hetherington, with respect to the number of persons admitted with minimal, moderately advanced, and far advanced disease (table 2). For each of these categories, the percentage of patients having sputum positive for acid-fast rods on smear or tubercle bacilli on culture is given. It can be seen that

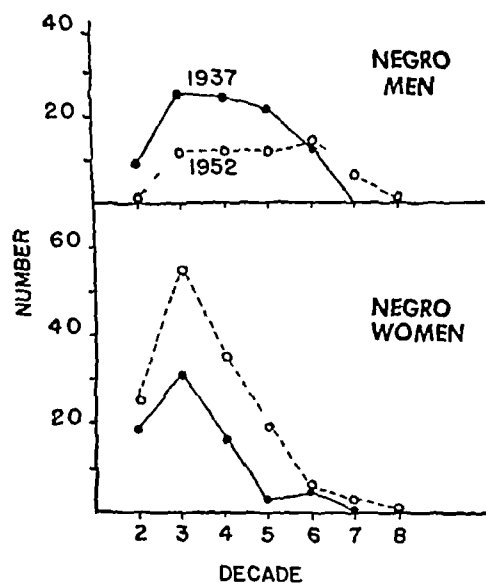


Fig. 1—Age distribution curves for consecutive discharges of Negro patients in 1937 (solid line) and 1952 (broken line)

there has been an increase in the number of patients with minimal and moderately advanced pulmonary tuberculosis and a corresponding decrease in the number with far advanced disease. A decrease of about 20% in the number with far advanced disease would have a favor-

able influence on prognosis. In the past 15 years, the percentage of patients with sputum containing acid-fast rods has increased a little in those with minimal and moderately advanced disease, but the increase is not statistically significant.

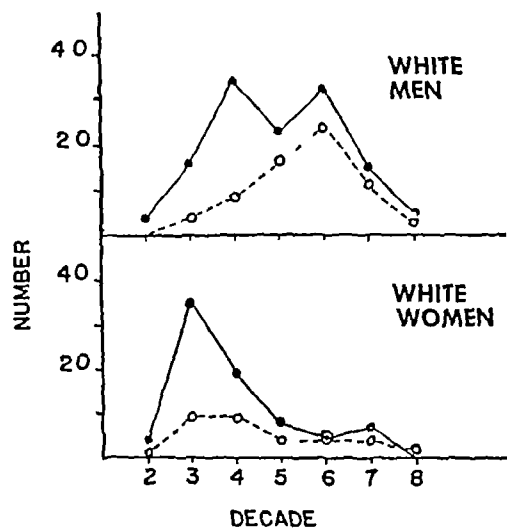


Fig. 2—Age distribution curves for consecutive discharges of white patients in 1937 (solid line) and 1952 (broken line)

Part or all of the decrease in the number of patients discharged with far advanced tuberculosis may be due to the increase in the length of hospitalization since 1947 (see below). The average length of hospitalization is greater for far advanced cases than for minimal and moderately advanced cases, therefore, the turnover of minimal and moderately advanced cases is greater, and they constitute a greater proportion of discharges than 15 years ago. This explanation is supported by the fact that, in 82% of the patients in the hospital at present, the disease is far advanced. This figure is essentially the same as that given by Hetherington and Epstein.

THERAPEUTIC PROCEDURES

In retrospect, the rapid evolution of modern therapy for tuberculosis during the last 6 years or so has been almost dramatic. The procedures accepted during 1937 at this institution are compared with those in use today (table 3). Pneumothorax has almost vanished because of the increasing restriction of the indications for this procedure. There has also been a decrease in the number

TABLE 2—Extent of Pulmonary Tuberculosis and Results of Sputum Examinations

Extent	1935 to 1937*			1952		
	No of Cases	% of Total	Sputum Positive %	No of Cases	% of Total	Sputum Positive %
Minimal	24	5.4	37.5	30	10.5	47
Moderately advanced	65	14.7	60	82	28.7	80.6
Far advanced	262	79.9	83.4	174	60.8	83.6
Total or average	441	100	85.4	286	100	86.7

* Epstein and Hetherington¹

of thoracenteses, decompressions, and intrapleural pneumonolyses performed, probably because of the diminishing use of pneumothorax. It should be remembered, however, that the decrease in patient turnover may be a factor.

Phrenic crush is practically never used anymore. The use of thoracoplasty has diminished to less than half of what it was in 1937. These procedures have been partially replaced by pneumoperitoneum and resectional surgery along with antimicrobial therapy. These therapies were not used at all 15 years ago. It is interesting to note, however, that the widespread use of pneumoperitoneum is now being diminished.

TABLE 3—Therapeutic Procedures Performed in Patients with Tuberculosis

	1937	1952
No. of patients discharged *	1 044 †	476
Pneumothorax		
Initial	219	11
Refills	4 333	290
Pneumoperitoneum		
Initial	0	41
Refills	0	2 707
Thoracentesis	198	121
Decompression	65	31
Intrapleural pneumolysis	36	9
Phrenic crush	53	1
Primary thoracoplasty	28 †	13
Oleothorax	1	0
Mondini's cavity drainage	0	2
Decortication	0	1
Segmental resection	0	2
Lobectomy	0	19
Pneumonectomy	0	8

* Excluding transfers

† Figure approximate because records were inadequate

It should be noted that therapy is more aggressive today than it was 15 years ago. Although the turnover of patients in 1952 was less than half that of 1937, the number of major surgical procedures carried out in 1952 exceeded the number in 1937. In addition, at any one time in 1952, the percentage of hospitalized patients receiving antimicrobial therapy approached a maximum of 92%. Since the percentage of patients receiving forms of treatment other than bed rest was relatively small, it is reasonable to attribute most of the favorable results of modern treatment (see below) to antimicrobial drugs. In fact, the relative increase in major surgical procedures, particularly the development of pulmonary resection, has been possible only because of antimicrobials.

RESULTS

Profound change has occurred in the clinical manifestations of tuberculosis and its complications since the introduction of effective antimicrobials at this institution in 1947. Since 1950, streptomycin and *p*-aminosalicylic acid have been readily available without financial obligation to the patient, and the course of therapy has been prolonged. Today, when antimicrobials are first given to a new patient, cough rapidly lessens so that narcotics are seldom used, toxicity, fever, and night sweats soon disappear, and, in most cases, the patient begins to gain appetite, weight, and strength. These changes occur more commonly and more rapidly than they did before streptomycin was available and when the only relief for systemic manifestations was bed rest and symptomatic therapy.

Distressing complications such as laryngitis and enteritis are now almost nonexistent. Even complications

that used to have a fatality rate of or near 100%, such as miliary tuberculosis, meningitis, and pericarditis,* often respond to therapy today. As a result of modern aggressive therapy, the patient feels that progress is real, this is reflected in his willingness to remain under treatment. There has been, therefore, a sharp increase in the average length of hospital stay that began in 1947 and has increased to more than three times its previous level (fig 3). On the other hand, some patients leave the hospital against advice, because they feel well and cannot be convinced that well-being is perhaps the least important manifestation of recovery from tuberculosis.

The major effect of antimicrobial therapy has been a dramatic lowering of the mortality rate. This is illustrated by the curve for deaths in percentage of total discharges (fig 3). A sudden drop began in 1950, with the widespread, prolonged, combined use of streptomycin and *p*-aminosalicylic acid. Whereas there used to be as many as five deaths per day, there are now sometimes only five deaths per month in the same department containing almost 400 beds. This sounds better than it actually is, however, for many patients with extensive, destructive pulmonary disease continue to be admitted, and death is delayed rather than prevented.

Disposition of patients in 1952 is compared with figures for 1935 to 1937 from the report of Epstein and Hetherington (table 4). Figures for 1952 represent the entire department of five services, whereas those for 1935 to 1937 represent only one service. Unfortunately, similar figures are not available for the entire department in previous years. The major change has occurred in the percentage of deaths that has dropped from 43% to 18.2%. The proportion of patients discharged with consent and to other institutions (sanatoriums) has increased a little. It is interesting, however, that there has been no

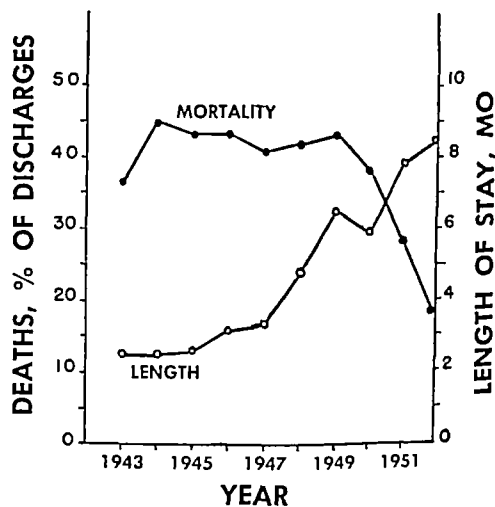


Fig 3—Average length of hospital stay of patients with tuberculosis in months and mortality rate in percentage of total discharges for the 10 years 1943 to 1952 inclusive.

significant drop in the proportion of patients discharged against advice and that only a few patients are now subjected to compulsory hospitalization. Compulsory hospitalization was not invoked at all in previous years. A small percentage of patients are now transferred to other departments of the hospital, when a nonpulmonary

complication attains prominence This was rarely done in 1937, and it merely reflects a change in policy since 1937

The foregoing figures are expressed in terms of the number of discharged patients per unit of time It is of in-

TABLE 4—Data Concerning Discharge of Patients with Tuberculosis

	1937 to 1937*		1951	
	No of Cases	% of Total	No of Cases	% of Total
Died	100	43	97	18.2
Discharge approved	81	18	131	24.6
Discharged to other institutions*	31	8	101	19
Discharge not advised	131	29	147	27.6
Intrahospital transfers	—	—	57	10.6
Total	441	100	532	100

* Patients had been treated on the service of Dr Hetherington

terest to determine whether the same conclusions can be reached from figures obtained for consecutive admissions In table 5, the hospital mortality rates by length of hospitalization for a sample of 101 consecutive admissions during January, 1937, are compared with a sample of 94 consecutive admissions during the months of October to December, 1951 It is again obvious that there has been a marked increase in the length of hospital stay In 1937, only 2% of the patients remained in the hospital for six months or more, while, in 1951, 55% did so In 1937, no patients remained in the hospital for 12 months or more, 29% did so in 1951

The hospital mortality rates derived in this manner show a drop from 44%, in 1937, to 15%, in 1951, over a period of 16 months from the date of admission This drop is truly remarkable, but it is too early to calculate the exact figure for 1951 admissions, because many patients are still in the hospital under therapy and some of these may yet die The question arises of how many patients will relapse after discontinuation of antimicrobial therapy and hospital care It remains for the future to tell how lasting are the current therapeutic benefits

COMMENT

The difficulties involved in comparing two situations at widely different points in time are obvious It cannot be certain that unrecognized variables operate in the

TABLE 5—Comparison of Hospital Mortality Rates by Length of Hospitalization for Consecutive Admissions in 1937 and in 1951

	Year	Length of Hospitalization Months				Total
		Under 2	2 to 5	6 to 11	12 or More	
% discharged alive or still in hospital	1937	32	24	1	0	50
	1951	10	23	22	29	80
% deaths in hospital	1937	34	8	1	0	44
	1951	8	7	4	0	15
Totals	1937	60	32	2	0	100*
	1951	18	30	26	20	100†

* 101 consecutive admissions in January 1937

† 94 consecutive admissions in the months of October to December 1951

same ways and with the same magnitudes over a period of 15 years A natural decline in the mortality rate of tuberculosis has been apparent in many parts of the world for many years This suggests that changes may

have occurred in the virulence of the tubercle bacillus, in the exposure and resistance of the host, or in various environmental and socioeconomic factors More particularly, subtle changes may have occurred in admission policies It seems unlikely, however, that such changes could be large enough to invalidate the present comparison of therapeutic results, since the dramatic fall in the hospital mortality rate and the marked increase in the average length of hospitalization is so closely related to the recent rapid changes in therapeutic methods, particularly to the developments in antimicrobial therapy The accelerated fall in hospital mortality since the advent of effective specific drugs has been reflected to some extent in a more rapid decline in the tuberculosis mortality rate for the entire city of Philadelphia, although the latter has not fallen so strikingly as the former The reasons for this difference are not within the scope of this paper, but it is safe to say that an inadequate number of hospital beds is the major factor

It is not my purpose to compare the virtues of pneumothorax with those of pneumoperitoneum or the advantages of thoracoplasty with those of pulmonary resection Actually comparison of these procedures is not valid, because the indications for each differ, and each has its own place The changing use of these therapies is primarily a reflection of improved clinical judgment and better understanding by the physician of the indications for each method of treatment and also a reflection of the development of antimicrobial therapy together with a broader surgical attack

In recent years, although there has been an increasing number of beds available, the rapid decrease in patient turnover in institutions in Philadelphia has aggravated the need for beds Improved methods of therapy have contributed to this situation instead of relieving it because they have prolonged the length of hospital stay The initial enthusiasm that greets the discovery of a new "miracle drug," with the hope of easing the over-all public health problem of the tuberculosis situation by rapid "cures," is, therefore, not based on realistic appreciation of the therapeutic obstacles inherent in the nature of the disease This is particularly true when one realizes that, although there has been a significant and continued decrease in tuberculosis mortality, morbidity rates have continued at a high level³ This indicates that we have not greatly reduced the contamination of society A review of newly reported cases in Philadelphia over the last 12 years⁴ reveals no significant changes except for those that can be accounted for by changes in case finding and case reporting Those who point to the decreasing mortality rate as evidence that the tuberculosis problem is solved are refusing to face reality The receiving ward of the Philadelphia General Hospital continues to turn away, for the lack of beds, all patients with tuberculosis except those who are terminal or who have an emergent complication such as hemoptysis The patients who are turned away then become names on a waiting list (This applies only to men at the present time)

3 Drolet G J and Lowell A M Whither Tuberculosis? *Dis of Chest* 21: 527 (May) 1952

4 Figures made available by the Philadelphia Tuberculosis and Health Association

SUMMARY AND CONCLUSIONS

During the past 15 years, there has been a remarkable change in the management and results of treatment of pulmonary tuberculosis. At the same time, there has been some change in the type of patient admitted to the hospital. These changes are described as they have developed in a large municipal general hospital.

Except for the Negro woman, patients with tuberculosis tend to be older today, the proportion of Negro patients has increased somewhat, and there is a smaller proportion of patients with far advanced disease discharged. The latter change may be due to differences in patient turnover, since the average length of hospitalization has increased, particularly for far advanced cases.

Pneumothorax, phrenic crush, and thoracoplasty have been replaced during the last six years to a great extent by pneumoperitoneum, pulmonary resection, and antimicrobial therapy, and these changes have been accom-

panied by a striking increase in the average length of hospital stay and a decrease in hospital mortality rate. The latter has occurred since 1950, when prolonged combined antimicrobial therapy became common. Institutional atmosphere and patient morale have greatly benefited from more aggressive therapeutics, rapid clinical response to antimicrobials, and improved prognosis. It should be emphasized that the outstanding development in modern therapy has been the prolonged, combined use of specific drugs.

The need for beds, however, has been aggravated rather than alleviated. Although relapse rates after antimicrobial therapy are not yet available, long-term follow-up studies will probably show that drugs often serve only to delay death rather than to achieve a "cure." For this reason, the problem of tuberculosis will continue to be one of major proportions for some time.

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UTERINE INERTIA

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During the past two decades, marked changes have occurred not only in the teaching but also in the practical application of obstetrics. The "watchful waiting" of some of the best teachers and clinicians has been replaced by sound knowledge and thoughtful application of facts learned, instead of the noninterference advocated formerly.

The "newer obstetrics" inquires into the factors that cause uterine inertia, with sound clinical judgment used in determining when passive expectancy should be replaced with active help for the patient. Many teachers are now beginning to teach what they practice rather than to practice radicalism and to teach conservatism. This approach has resulted from the realization that so-called normal labor can result in great harm to both mother and child. A prolongation of either the first or second stage of labor due to inertia may lead to fetal damage if the condition is not corrected by a sane approach to the problems causing these irregularities in labor.

Uterine inertia has been defined as weak or irregular uterine contractions during labor. Under ordinary circumstances, the pains of labor are progressive in severity and frequency from the onset until the delivery, causing cervical dilatation to proceed in a continuous uninterrupted manner.

Reynolds¹ and Reynolds and co-workers² studied uterine motility by means of the Tokodynamometer, a recorder with gages to measure muscle strain placed externally. By this method they show that the fundus contracts with greater force and does more work than the

middle portion of the uterus or the lower uterine segment. The intensity of the contractions and the amount of work done by the fundus increases as normal labor progresses. Failure of the uterus to contract with sufficient vigor and coordination to effect continuous cervical dilatation results in prolonged labor. This phenomenon has been called uterine inertia of the primary or true type.

Secondary inertia is the term applied when contractions are first normally vigorous but as a result of exhaustion become infrequent and ineffective. Essentially it is a condition of maternal fatigue with exhaustion and dehydration. Under ordinary circumstances the pains of labor are progressive in severity and frequency from the onset until delivery.

A lapse of eight hours with no cervical dilatation seems to be sufficient for the condition to be called secondary inertia. A lapse of from four to eight hours seems to be time enough for the condition to be recognized by most obstetricians. Treatment then can be instituted without affecting the fetus too greatly. An analysis by Eastman³ of 6,608 labors showed that the incidence of secondary inertia was 3.5%.

The discussion in this paper applies to uterine inertia only and it is assumed that other conditions such as disproportion and malformations of the fetus are not present or have been ruled out.

CAUSES

Position or Stage of the Fetus—When the head or breech does not press firmly or evenly against the cervix or lower uterine segment, the frequency and intensity of the pains are not normal. Posterior or transverse positions of the head are other examples of conditions that cause abnormalities of labor.

Overdistention of the Uterus—Multiple pregnancy or hydramnios may cause an overdistention of the musculature of the uterus. In such cases the pains are not normal.

Read at the Sixth Clinical Session of the American Medical Association, Denver, Dec. 4, 1952.

1. Reynolds, S. R. M. *Physiology of the Uterus*, ed. 2. New York, Paul B. Hoeber, 1949.

2. Reynolds, S. R. M., Heard, O. O., Bruns, P., and Heliman, L. M. A Multi-Channel Strain Gage Tokodynamometer: An Instrument for Studying Patterns of Uterine Contractions in Pregnant Women. *Bull. Johns Hopkins Hosp.* 82: 46, 1948.

3. Eastman, N. J. Pituitary Extract in Uterine Inertia: Is It Justifiable? *Am. J. Obst. & Gynec.* 53: 432, 1947.

Atypical Development of the Uterine Musculature — Bicornate uteri and all variations and atypical anomalies of the musculature usually result in weak and improper contractions. Hypoplasia of the uterine musculature is characteristic of a type of woman who is unable to conceive for a long period of time and usually has a funnel pelvis and a long cervix with an anteverted uterus. In anterior displacement the uterus is developed above and in front of the symphysis. This causes the pendulous abdomen, and the contractions are always poor in quality and irregular.

Inhibition of Contractions Due to Emotional Disturbance — Recent work has shown that excessive production of epinephrine as a result of anxiety or fear results in cessation of contractions. The action of the epinephrine on the innervation causes inhibition of the pains.

Debilitating Conditions — Anemia, hemorrhage, prolonged fevers, chronic wasting diseases, and rapidly succeeding pregnancies are all conditions that must be considered in uterine inertia.

Tumors in the Wall of the Uterus — Tumors may interfere with the coordinating and conducting apparatus and cause alterations in strength, frequency, and duration of contractions. Multiple fibromyomas are the most frequent offenders.

Heredity — Some women in whom none of the other factors are present have prolonged labors as did their mothers and other relatives. This group I would rather call the glandular type, as they usually are short, fat, and lethargic and generally follow the hypothyroid pattern. Their glandular systems and secondary manifestations are usually underdeveloped.

TREATMENT

The station and position of the presenting part and the dilatation of the cervix are the cardinal points in the successful vaginal delivery of all patients. Primary inertia or that occurring in the early stages of labor may be preceded by spontaneous rupture of the membranes. Early rupture of the membranes was thought to result in a difficult or dry labor. Recently, a different view has been advanced that confirms my experience that labor is considerably shortened when the membranes are ruptured early. While breech presentations do not cause even pressure on the lower uterine segment as does a well-engaged vertex, nevertheless rupture of the membranes causes lengthening of the lower uterine segment, with the resulting thinning, effacement, and dilation through pressure on the cervix.

Since the advent of antibiotics and a uniformity of sterile technique in all recognized hospitals, infection is not the factor in obstetrics it formerly was. Thus, rupture of the amniotic sac is not feared by the modern obstetrician.

Inertia with breech presentation and especially that occurring in primiparas presents a special problem, as the high mortality rate of the fetuses should be given considerable thought. The present consensus seems to be that in the face of prolonged inertia, cesarean section is the treatment of choice.

Many patients enter the obstetric department in active labor having regular and firm contractions, but

the anxiety, nervousness, and frustration aroused in the subsequent preparations result in a complete cessation of labor pains. Time, rest, and in some instances judicious use of sedatives or hypnotics as the case may warrant results in the resumption of normal labor. When labor is not resumed, inertia is to be suspected and proper means to combat this condition should be instituted.

Posterior pituitary-U S P (Pituitrin) or preferably oxytocin (Pitocin), which is now generally used because of the elimination of side-effects, can be employed intramuscularly in one or two minim doses every 30 minutes to initiate the uterine contractions. The judicious use of this oxytocic serves a definite need in the therapy of inertia.

Oxytocin is given continuously intravenously by placing 0.5 cc of oxytocin in 500 cc of glucose solution and administering it intravenously by the drip method. The rate of flow can be regulated as to the dosage required, but simple arithmetic gives the approximate dosage of 1½ minims in each 100 cc of solution. The patient should be carefully watched, and if the duration of the pains exceeds one minute or if the severity of the contractions is markedly increased, the administration of oxytocin should be stopped. Tetanic contractions can be controlled by analgesics given intravenously, such as meperidine (Demerol), *dl*-methadone (Dolophine), or morphine.

Oxytocin or posterior pituitary extract has been given intranasally successfully by some obstetricians, but this method has not had the widespread use of other methods of administration. Nasal packs are saturated with oxytocin and inserted under the lower or midturbinate bone until physiological action has occurred. The packs can then be removed. The rate of absorption varies with the individual and cannot be regulated as can the other means of administering the drug. This is the most important reason for condemning this means of administration.

Murphy has shown⁴ that estrogens produce an increase in muscle tone of the uterus after the 29th week of gestation in 25% of normal patients. With this rationale, estrogen and estradiol have been given in doses varying up to 500 mg. Its use is questionable, and further study is necessary before it can be widely advocated.

An overdistended bladder or a full rectum may be a factor in the proper advancement of labor. This may at times be ignored because it is considered trivial, but a cleansing enema on admission and careful watching will help many patients over the course of labor in much less time than is generally believed. If labor is prolonged and the patient is under sedation, catheterization should be done as needed by the nursing staff, without special orders from the attending obstetrician.

If the patient has secondary uterine inertia that actually is due to fatigue or exhaustion, proper means of supportive treatment must be instituted without delay. Adequate nutrition and the judicious use of sedatives will do much to prevent or to limit maternal anxiety and distress, which may force the obstetrician to interfere.

⁴ Murphy D P. Uterine Contractions Associated with Prolonged Labors. Observations of Uterine Motility Made with Lóránd Tocograph. *Surg. Gynec & Obst* 78: 207, 1944. Uterine Contractility in Pregnancy. A Study of Contractions of Pregnancy and Labor Under Normal and Experimental Conditions. Philadelphia: J B Lippincott Company, 1947.

before the patient has reached the stage where vaginal delivery is safe

The cervix being soft, dilatation usually occurs if given time, but the "rigid" or "stenosed" cervix must be treated with respect. Spastic cervix is another term given this condition. The diagnosis is made by vaginal examination, and the cervix is usually effaced but a small opening of 1 or 2 cm with a firm musculature surrounding the cervical opening persists. The pains are usually active and strong, but the spasm in the lower uterine segment seems to be the condition delaying the progress of labor. This condition is not to be confused with a true contraction ring, which occurs higher in the musculature of the uterus. Dihydroergotamine (DHE-45), in doses of 0.5 cc given intramuscularly or intravenously, should be administered for spastic cervix or spasm of the lower uterine segment. Baskin and Crealock⁵ and Gill and Farrar⁶ have reported excellent results with this drug.

Dihydroergotamine was prepared by Stoll and Hoffman.⁷ It differs from ergotamine in that it is said not to have an effect on uterine muscle, instead of producing vasoconstriction, it causes some vasodilatation. The sympatholytic effect of dihydroergotamine is more powerful than ergotamine tartrate-U.S.P. (Gynergen) according to Rothlin.⁸

More recent work by Sauter⁹ has shown that the tone of the whole uterus is increased by sympathetic activity and decreased by parasympathetic activity. This can be interpreted to mean that overactivity of the sympathetic nervous system may cause a degree of spasm of both the cervix and the upper uterine segment. This author suggested that diminished sensitivity to sympathetic impulses, which may be produced by dihydroergotamine, may relieve such spasm.

There might be some hesitancy to use dihydroergotamine because it is an ergot preparation, but it must be remembered that it differs from the natural alkaloid, ergotamine. Dihydroergotamine is, however, a potent drug and must be used cautiously and in selected cases. I have used this drug in 10 cases of cervical dystocia, in doses of 0.5 cc intravenously, with dramatic results and without side-effects. It should not be used unless the cervix is dilated from 4 to 5 cm nor in the presence of malposition or disproportion.

Altman and co-workers¹⁰ reported that dihydroergotamine is oxytocic and can induce labor, and they caution against its indiscriminate use. These findings do not agree with those of other observers.

Constriction or contraction ring is an annular contraction of the uterus that may occur theoretically at any level of the uterine muscle and cause dystocia in the presence of a normal cephalopelvic relation. The position of the

ring remains constant during labor, and rupture of the uterus does not occur. The absence of rupture is explained by the fact that the upper segment is often relaxed and contracts ineffectively, whereas the lower segment is not excessively thinned out. The constriction ring is for this reason associated with uterine inertia. A ring may occur at the external or internal os, at the junction of the upper and lower segments, or at any level of the upper and lower segments. Inertia may be present in both upper and lower segments, but increased tone in one or both areas of the uterus may be a part of the picture of inertia.

Dührssen's multiple incisions with forceps delivery usually are heroic measures that do not get the ring at all. Manual dilatation, with forceps or version and extraction, can be used with good results under certain circumstances but at present manual dilatation is generally regarded as manual laceration.

Magnesium sulfate, given intravenously, 10 cc of a 20 or 25% solution, calcium gluconate, 10 cc of a 10% solution, or magnesium gluconate, 10 cc of a 20% solution, may be tried for the relaxation of the ring. Epinephrine, 10 minims intramuscularly, and dihydroergotamine, 0.5 cc given either intravenously or intramuscularly, have proved of value.

With the patient under deep anesthesia, the hand should be placed in the vagina or the uterus as the case may be so that the relaxation of the ring can be felt. When anesthesia or drugs fail to relieve the spasm, cesarean section should be done.

Application of Willett scalp traction forceps to a fold of the child's scalp with 2 lb (0.9 kg) of traction has proved of value in certain instances of inertia when the cervix was at least half dilated. The bad fetal results, namely, the laceration and slough of the area on the child's scalp, have generally resulted in less use of this procedure than of most techniques.

The hydrostatic bag can be used in inertia when the cervix is half or more dilated. Two pounds of traction are usually applied, and results generally are forthcoming within one to four hours. Its use is not without some hazards, infection and the need for an anesthetic for incision being the chief ones. It has limited use and should be used only in cases in which conditions justify the risks incident to its introduction.

Surgical delivery is indicated at any time the cervix is fully dilated. If the head is above the ischial spines, version and extraction should be the procedure of choice, while forceps extraction is recommended when inertia appears after full dilatation of the cervix and the head is below the level of the ischial spines. Anomalies of the uterine musculature and tumors of the wall of the uterus evidence themselves by poor contractions even after various methods of uterine stimulation are used.

Cesarean section may be the choice of delivery when one or a combination of the previously mentioned conditions are the cause of the inertia. It should not be the means of last resort, but should be used after a reasonable trial of other methods mentioned before in the treatment of inertia. We have the facts and figures on cesarean section, which are well known. What we do not have are the statistics on the mothers who have been made chronically invalids for life because a cesarean section was not done early in a complicated labor, but the mothers were

5 Baskin M J and Crealock F W Use of Dihydroergotamine Methanesulfonate (DHE-45) in Shortening Labor Rocky Mountain M J 48 514 1951 Management of Cervical Spasm with Dihydroergotamine Methanesulfonate (DHE-45) West J Surg 58 302 1950

6 Gill R C and Farrar J M Experiences with Dihydroergotamine in Treatment of Primary Uterine Inertia J Obst & Gynaec Brit Emp 58 79 1951

7 Stoll A and Hoffman A Die Dihydroderivate der natürlichen linksdrehenden Mutterkornalkaloide Helvet. chim acta 26: 2070 1943

8 Rothlin E Pharmacology of Natural and Dihydrogenated Alkaloids of Ergot Bull Acad Suisse Sci Med 2 249 1946-1947

9 Sauter H Use of Dihydroergotamine (DHE-45) in Childbirth Schweiz. med Wchnschr 78 475 1948

10 Altman S G Waltman R Lubin S and Reynolds S R M Oxytocic and Toxic Actions of Dihydroergotamine-45 Am J Obst & Gynec 64 101 1952

delivered from below. A stillborn infant and the mother left in questionable condition because the obstetrician did not want to increase his incidence of cesarean section is a picture that is too familiar.

SUMMARY AND CONCLUSIONS

Clinically, the condition of uterine inertia should be recognized, as early diagnosis is essential to successful treatment. It is a complication in about 3.5% of deliveries. The two types of inertia, primary and secondary, have been described. True and false labor must be differentiated. The cause and type of inertia can then be determined.

Disproportion and midpelvic contractions should be ruled out before the patient goes into labor by means of x-ray measurements. Abnormal fetal positions should

also be recognized, occiput posterior and breech presentations are the commonest ones. Inertia with breech presentation in primiparas, particularly those over 35 years old, is a special problem and must always be given careful consideration before any treatment is instituted. The high fetal loss has been shown to be due to asphyxia and intrauterine infection. Rest, sedation, and fluids are of value in the exhausted patient, but most errors result from failure to recognize the spastic lower uterine segment type of inertia early in its appearance.

Failure after adequate trial by the nonsurgical methods of stimulation should be an indication for cesarean section, which is the surgical procedure of choice if done early.

Republic Bldg

EFFECT OF CIGARETTE SMOKE ON THE PERIPHERAL VASCULAR SYSTEM

RADIOACTIVE IODINATED ALBUMIN USED AS INDICATOR OF VOLUMETRIC CHANGE

Morris T. Friedell, M.D., Chicago

The inhalation of tobacco smoke will produce vasoconstriction because, chiefly, of its nicotine content. Roth¹ states that from 2.5 to 3 mg of nicotine are absorbed from the lungs when a standard cigarette weighing approximately 1 gm is smoked. She devised a test that showed that two cigarettes smoked in succession produced a drop in the skin temperature of a finger. The decrease in skin temperature was considered indicative of the vasoconstriction produced by smoking. According to her figures, therefore, it can be assumed that each person tested received from 5 to 6 mg of nicotine during the time required to smoke two cigarettes. Roth states that, when nicotine is injected intravenously in 2 mg quantities, the degree of drop in skin temperature is much more rapid and definite than that which follows the smoking of two standard cigarettes. Obviously the effects of nicotine obtained from smoking and from direct injection are not quite similar.

Alterations in skin temperature have long been used to estimate changes in blood flow of an extremity. Fletcher² has pointed out that the sensitivity of skin temperature as an index of blood flow in the room temperature range is not as satisfactory as might be considered from its common use in measuring peripheral circulation. Other methods such as plethysmography and nail bed capillary counts have been used to estimate peripheral blood flow, but all these methods carry with them a definite factor of error. All of these tests, nevertheless, tend to show that vasoconstriction can be produced by smoking.

Krieger and associates³ have described a method in which radioactive iodinated human serum albumin is used to evaluate peripheral circulation. The administration, intravenously, of albumin tagged with I¹³¹ will allow accurate measurement of the circulating blood volume because this material disappears slowly from the blood stream. (There is some evidence that, during the first 24

hours, some equilibrium changes occur with the albumin of the lymph.⁴) Five to 10 minutes after injection of the tagged albumin, adequate mixing appears to be established in the blood, and a constant reading of radioactivity may be obtained from an extremity. Since the radioactivity originates solely from intravascular sources, it serves as an index of the blood volume of the site measured. Induced changes in radioactivity will thus indicate and be directly proportional to alterations in blood volume over the area. It can be shown that, with alterations in blood volume, radioactivity will increase or decrease. Since measurements are made with a scintillation counter that is sensitive to gamma radiation, the changes in radioactivity will reflect the change in blood volume in a cross section of the area measured rather than of the surface only. The per cent change of radioactivity, it must be assumed, indicates an equivalent change in blood content of the volume measured. Such a method appears to be suitable for measuring vasoconstriction and dilatation in an extremity and was used to study the effects of smoking on the peripheral circulation.

EXPERIMENTAL PROCEDURE

In our tests, cigarettes of standard size in the popular brands were used. No attempt was made to control this factor. In order to simulate the same test with a cigarette

The radioactive iodinated serum albumin was obtained from Abbott Laboratories, North Chicago, Ill.

From the Hektoen Institute for Medical Research of the Cook County Hospital. Clinical Associate Professor of Surgery, Stritch School of Medicine. Attending Surgeon, Cook County Hospital.

1. Roth, G. M. Tobacco and the Cardiovascular System, edited by I. H. Page and A. C. Cocoran. Springfield, Ill.: Charles C. Thomas Publisher, 1951.

2. Fletcher, E. S., Hall, J. F. Jr., and Schaub, H. G. Skin Temperature of an Extremity as a Measure of Its Blood Flow. *Science* 110: 422-423 (Oct. 21) 1949.

3. Krieger, H., and others. The Use of Radioactive Iodinated Human Serum Albumin in Evaluating Peripheral Circulation. *Ann. Surg.* 136: 357-365 (Sept.) 1952.

4. Wasserman, K., and Mayerson, H. S. Exchange of Albumin Between Plasma and Lymph. *Am. J. Physiol.* 165: 15-26 (April) 1951.

supposedly permitting less inhalation of the products of tobacco combustion, however, the results in each person were compared with the results of each smoking a cigarette fitted with a newly developed and highly efficient filter. This filter was claimed by the manufacturer to reduce the nicotine and tars inhaled by about 50%. The test proved to be sensitive enough to distinguish, significantly, differences between the effects of the two types of smoke inhaled. The investigations have since been extended to a comparison of other types of filters and to a determination of sensitivity to cigarette smoke in peripheral vascular disease. The latter will appear in a subsequent report. We believe that the test should prove to be a good indicator of the susceptibility of a person to tobacco smoke.

Method—One hundred to 125 μ c of labeled (I^{131}) serum albumin in 1 or 2 cc of isotonic sodium chloride solution were injected intravenously. For a few days prior to this time, the persons tested can be given a strong iodine solution (Lugol's solution) to protect the thyroid gland. The dose of labeled serum albumin used hardly exceeds a standard tracer dose, however, and has no significant effect in adults. This quantity afforded enough radioactivity to permit testing for several days. Tests were carried out from 2 to 48 hours after injection.

Equipment—A scintillation counter was used with suitable lead shielding to eliminate extraneous radiations from the body. The counter was directed solely toward the extremity measured (the hand extended laterally from the body was most convenient). The impulses from the counter were fed through a count-rate computer and recorded simultaneously on a moving graph (Esterline-Angus). An alternate method of continuously recorded radioactivity was obtained from minute to minute counts fed from the scintillation counter into a variable scale counter attached to a mechanical printing and automatic timing recorder (Streeter-Amet).

Testing—The persons tested were allowed to recline with the arm extended straight and laterally from the shoulder. The arm and hand were supported by a padded board. Constrictive restraints were not applied, the fingers were allowed to lie comfortably in contact with the aperture of the scintillation counter. In order to avoid disturbances in geometry that would thus alter the basic counting rate, motion was not permitted. The radioactivity present in the body had little effect because of the distance and the shielding between it and the scintillation counter. After the person had become comfortably adjusted, preliminary measurements were made to assure stable recording of the radioactivity present. (The radioactivity must be several times the background to give statistically accurate results.) With this technique, it is possible to obtain stable counts minute after minute without inducing fatigue or altering the geometry.

5 Friedell M T, Drucker E F and Pickett W J. Histidine and Ascorbic Acid Treatment of Arteriosclerosis Obliterans with Radioactive Isotope Estimations of Circulatory Effects. *J A M A* 138 1036-1039 (Dec 4) 1948. Friedell M T, Schaffner F, Pickett W J and Hummon I F Jr. Radioactive Isotopes in the Study of Peripheral Vascular Disease. I. Derivation of a Circulatory Index. *Arch Int Med* 83 608-619 (June) 1949. Schaffner F, Friedell M T, Pickett W J and Hummon I F Jr. Radioactive Isotopes in the Study of Peripheral Vascular Disease. II. Method of Evaluation of Various Forms of Treatment. *ibid* 83 620-631 (June) 1949. Friedell M T, Indeck W and Schaffner F. Radioactive Isotopes in the Study of Peripheral Vascular Disease. Further Studies on Circulation Index with Evaluation of Diagnostic and Therapeutic Value of Priscoline. *ibid* 85 667-674 (April) 1950.

After these arrangements were completed a smoking test was made. The cigarette was lighted, and the person was permitted to smoke for four minutes. The rate of smoking was regulated so that two-thirds of the cigarette was consumed. Observations continued for some time after the cessation of smoking.

Selection of Subjects—The persons tested were chosen at random and did not have any obvious disturbance of the cardiovascular system. In order to obtain random selection of cigarettes, various brands were obtained by borrowing them from people about the hospital or by purchasing them over the counter. The filtered cigarettes were supplied by the manufacturer, but open purchase was also made in stores.

RESULTS

For some time, we have been using radioactive isotopes for the study of peripheral vascular circulation. Even those in the form of diffusible ions have enabled us to compare blood volumes, especially in unilateral peripheral vascular disturbances. They have also permitted us to compare the effects of vasodilating and vasoconstricting mechanisms on the peripheral vascular system. In our experience, a vascular arterial occlusion that reduces the radioactivity in an extremity to 40%, or less, of that of the nonaffected side will inevitably cause gangrene, although efforts at peripheral dilatation, such as ganglionic nerve block or sympathectomy, seldom increased the radioactivity more than 50% above that of the uninvolved extremity. It was assumed, therefore, that alterations in blood volume caused by smoking would hardly exceed these figures. In fact, we feel that it can be stated that alterations in blood volume of more than plus or minus 50% of the norm will not occur except in pathological states. In the subjects tested, alterations in net radioactivity reached these maximum changes momentarily in a few persons but were quite exceptional. A rise in radioactivity occurred in some persons after smoking. The cause for this is probably peripheral dilatation rather than constriction; it can also be reproduced by light venous constriction. (Thus it can be hypothesized that, in some persons, venous constriction rather than arterial constriction predominates.) These changes in radioactivity indicate that the method selected is sensitive to changes in blood volume *in vivo*, and this is borne out by the subsequent results.

Parenthetically it should be noted that a number of persons who had been rendered radioactive for other reasons, for example, for the treatment of leukemia with radioactive phosphorus and for the treatment of thyroid disease with radioactive iodine, and whose blood streams contained a measurable amount of radioactive substance (measured with a Geiger-Mueller counter) responded similarly to these simple tests and also responded to smoking with changes in the concentration of radioactivity in the extremities.

One hundred persons with presumably normal circulation were tested. There were 52 men and 48 women in this group. The median age of the men was 34, and the median age of the women was 32. The men ranged in age from 21 to 70. The women ranged in age from 17 to 61. It was found that 79 of the persons tested were sensitive to ordinary cigarette smoke. This meant that

one out of five persons who smoke show no response to a single cigarette by this method. When the newly developed, mineral type, filtered cigarettes were tried, 34 persons, or one out of three, showed no response to the smoke from filtered cigarettes (fig 1). This finding indi-

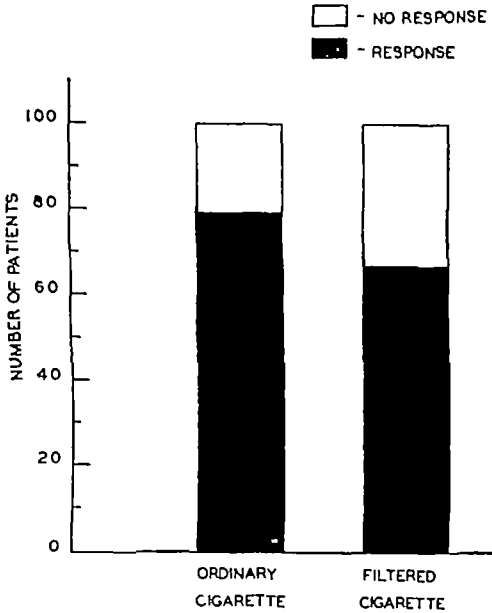


Fig 1—Over all response to smoking in 100 patients tested

cated that the nicotine and other alterative factors were removed in a certain percentage to a level either to which the test was not sensitive or to which the patients did not receive enough vasoalterative substance to produce change in the radioactivity of the part measured, the fingertips. Men and women showed about the same percentage of sensitivity to smoke. The women, however, responded somewhat better to filtered smoke than the men. Approximately 71% of the men showed some reaction to smoking a filtered cigarette. Only 60% of the women showed a reaction to smoking a filtered cigarette.

The degree of sensitivity to smoke was reflected not only in the alteration of radioactivity but also in the

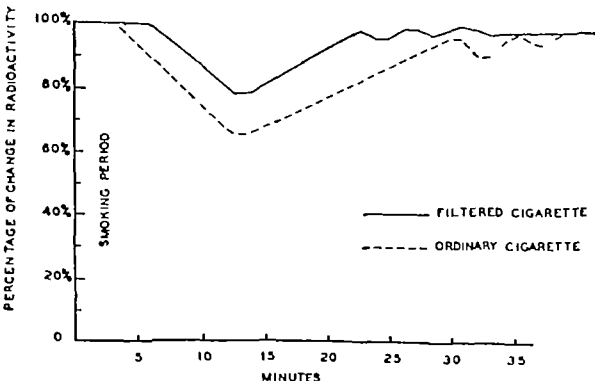


Fig 2—Average change in radioactivity (blood volume) of women tested

rapidity of onset and the length of time for recovery after smoking had ceased. The maximum response occurred from 8 to 10 minutes after the person began to smoke. In general, the men recovered somewhat more quickly after

smoking than the women, the rate of recovery was proportional to the degree of alteration in radioactivity. Contrary to some previously published reports,¹ the additional effect of smoking two cigarettes consecutively, once the vasoconstriction or vasodilatation had occurred, was not marked, therefore, the test was confined to the smoking of a single cigarette. Until recovery had been completed, smoking another cigarette had no further effect except in one or two instances.

The period of recovery was marked in some persons by rather bizarre increases and decreases in radioactivity that indicated periods of constriction and dilatation. These were more noticeable in some smokers than in others, but they probably represent attempts to compensate for the previous alteration in the peripheral circulation. Smoking a cigarette during this period usually had little or no effect (figs 2 and 3). The degree of alteration in radioactivity was much more apparent in women than in men, indicating a greater sensitivity to the effects of smoke or else a much more elastic peripheral vascular system. Since the latter is a recognized fact

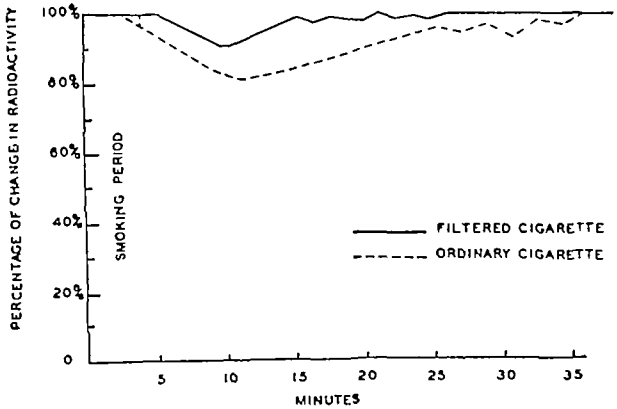


Fig 3—Average change in radioactivity (blood volume) of men tested

in women, it is felt that the degree of response represents a sensitivity to smoking in women that is considerably greater than in men because of the much more labile peripheral vascular system (fig 4).

The maximum degree of alteration in blood volume in sensitive men averaged 19%, whereas, in women who responded, the degree of alteration was approximately 33%. The addition of a filtered cigarette in each case lowered the responses considerably. The men showed a 10.7% change with a filtered cigarette, while women showed a 20.5% change. This would indicate that women are much more sensitive to nicotine and other tobacco products than men. This probably accounts for two factors: (1) women who enjoy the reaction of tobacco become deeply habituated, continue to smoke, and find it hard to stop, and (2) men who get less reaction from smoking probably will smoke more cigarettes.

In spite of a greater sensitivity or greater response by women to smoking, the incidence of peripheral vascular diseases of certain types in which the vasoconstrictive effects of smoking are supposedly an etiological cause is less common and, in fact, quite rare in women. Buerger's disease in women is quite unusual. On the other hand, Raynaud's disease and other labile vascular diseases are commoner in women, and this would indi-

cate that women have relatively less stable or more responsive peripheral vascular systems. This coincides with the work of a number of other investigators, as cited by Roth¹, that is, the vasoconstrictive effects of smok-

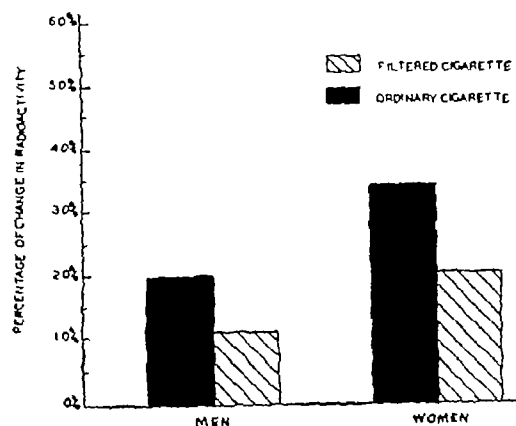


Fig 4—Comparison of percentage change in radioactivity (blood volume) caused by filtered and nonfiltered cigarettes

ing in patients with Buerger's disease are not demonstrably greater than in those with normal circulation. The effect of tobacco smoke in Buerger's disease is probably unrelated to vasoconstriction from smoking.

Effect of Age—Most of the subjects were young persons with responsive peripheral vascular systems. It was noted that of the 21 persons who were older than the average age for each sex, there was no change on smoking in 18, indicating that older patients have little or no vasoconstrictive effects from smoking. A few of the same 21 showed a definite change due to smoking.

Most of the subjects tested were smokers, and it was difficult to differentiate between the smokers and the nonsmokers. There was a group, however, in which smoking was less common. These persons were often reluctant to take a cigarette when it was offered and would not submit readily to the test. All of these responded to smoking by a positive aversion, nausea, dizziness, and a feeling of weakness, and, in all of these, there was a rise in radioactivity in the extremity measured. None of these persons enjoyed smoking, although some of them smoked on occasion.

This phenomenon (the rise in radioactivity) was discovered by chance when preliminary investigations were underway. A patient who had previously received a therapeutic dose of radioiodine for hyperthyroidism was asked to smoke. She was unwilling to do so, but, after persuasion, she submitted. The scintillation counter was placed against her fingertips. After the base line was determined, the patient was requested to smoke a standard cigarette. There was a prompt rise in radioactivity of the extremity. Because this was an unexpected phenomenon, she was asked to return the next day. The next day she stated that she did not wish to smoke another cigarette because smoking made her feel quite ill. She had forsaken smoking long ago for this reason. With some persuasion the test was repeated, and the same phenomenon occurred. It was considered possible at this time that the change in radioactivity could be attributed to this woman's hyperthyroidism as much as to any other factor. When 100 supposedly normal persons were examined by the same method, however, it was

found that 16 of the sensitive persons responded by a rise in radioactivity after smoking. This was approximately 20% of the sensitive persons (fig 5). We are unable to account for this rise, except that it does resemble the same type of rise caused by light venous occlusion. We feel that we should attribute it to an increase in blood volume in the peripheral circulation, with probably a concomitant diminution in central circulation that results in the sensations of nausea and dizziness and a feeling of weakness and illness.

SUMMARY AND CONCLUSIONS

Men and women are not equally sensitive to tobacco smoke. Approximately one out of every five persons does not receive sufficient nicotine to affect the peripheral circulation. Since many of these persons do not inhale, it is quite likely that it is the method of smoking rather than the effect of smoking that causes no change in peripheral blood volume.

The vasoalterative effects can be reduced by the addition of an efficient filter and probably could be done away with if the filter were made sufficiently effective. The desirability of reducing the vasoconstrictive or the vasoalterative effect by filtration seems to be indicated more in women than in men. Possibly, special brands of cigarettes should be sold to women to reduce this effect further. The lability and the sensitivity of the peripheral vascular system is evidenced by the fact that there is 33% alteration of radioactivity (blood volume) in women when a standard cigarette is smoked, as against 19% alteration of radioactivity (blood volume) in men.

Many older persons, in the group over 35 years, did not show change. Of 21 persons who did not respond to the test, 18 were beyond the median age. This indicates that these persons either do not inhale when they smoke or have less sensitive peripheral vascular systems. Prob-

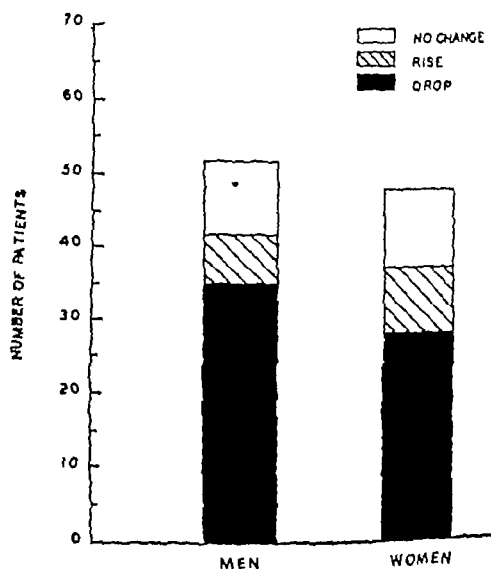


Fig 5—Comparison of reaction to smoking by sex.

ably, persons over 40 can smoke without evident, immediate alterative effects on peripheral circulation.

The principle of filtration of tobacco smoke is probably a good one and should be used by both men and women. Women evidently need it more than men.

THE RECORDING OSCILLOMETER IN ORTHOPEDIC PRACTICE

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and

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The circulation of blood through the extremities has been known to be of basic importance since the dawn of medical knowledge, and devices for its measurement date back almost as far Aristotle¹ (384 to 332 B C) and other ancients were aware that pulsations occurred in the peripheral blood vessels, but it was not until after Harvey's² classic description of the hemodynamics of circulation in 1628 that Francis Glisson (1597 to 1677) developed the first crude mechanical device for the measurement of peripheral circulation. It consisted of a plethysmograph for the measurement of changes in the size of a part due to changes in the circulation in the part. A similar instrument for the measurement of muscular contraction was developed by Jan Swammerdam (1637 to 1686).³

Since that time many investigators have added ideas and mechanical devices for the measurement of peripheral blood flow. Among the most recent is the recording oscillogram developed by Dr Carl A. Johnson of Chicago.⁴ During the past year, 435 patients have been studied with this instrument at the University of Illinois' Department of Orthopaedic Surgery. This paper consists of a report of the findings in these cases and a discussion of this method of recording extremity blood flow.

METHOD

The recording oscillogram is of the mechanical recording type, with optical registration of the volume changes. It consists essentially of a blood pressure cuff that, when inflated, transmits the pulse wave to an alcohol droplet in a pipet, causing the droplet to oscillate. A beam of light directed across this droplet is focused by it on a timed and calibrated photographic paper producing a graphic record of the circulation. In measuring the waves⁵ produced by the oscillogram in a normal subject the amplitude and the crest time are of interest. The amplitude will vary according to the pressures in millimeters of mercury at which the readings are taken and will vary if the circulatory mechanism is affected by disease or other factors. The crest time, which is the time elapsed from the beginning of the upstroke to the first notch, varies from 0.08 to 0.12 seconds in normal subjects. Changes in this value indicate myocardial damage or a collateral type of circulation.⁶

In selecting subjects for this study, attempts were made to choose persons who had involvement of only one extremity so that recordings obtained from the normal member could be used as a control. Beginning oscillogram readings were taken at 200 mm Hg, each subsequent reading being taken at 30 mm less, until a pressure of 80 mm Hg was reached. This procedure was followed in all patients except children, in whom the highest pressures at which recordings were obtained was 170 and the lowest 50 mm Hg. Skin temperatures were taken by means of a thermocouple on the extremities in all patients studied. Subjects with the following disorders were

examined (1) poliomyelitis, (2) osteomyelitis, (3) fractures, (4) vascular disturbances, and (5) miscellaneous disorders.

POLIOMYELITIS

To date, a total of 20 patients who have extremity involvement from anterior poliomyelitis, ranging in age from 5 to 55, have been studied. Ten were males and 10 females. All patients in this group were seen at least 18 months after their acute illness, and all were admitted to the Illinois Research and Educational Hospital to undergo reconstructive surgery. No patients in the acute phases of the disease were studied. The circulation on the affected side is decidedly decreased. The skin temperatures, however, are about the same. The decrease in circulation correlates well, in most cases, with the decreased muscle mass and shortness on the involved side.

OSTEOMYELITIS

Twenty-four patients with osteomyelitis were studied, ranging in age from 10 to 55 years. The infection was of such long standing and severity in four patients that amputation was necessary. Twelve showed increased arterial pulsations on the involved side, four showed a decrease, and eight showed no change. Patients showing a decrease or no change had minimal active infection on admission to the hospital. In the 12 patients showing increased pulsations either there was an acute as well as a chronic inflammatory process or there was extensive scarring and soft tissue involvement with edema. An example from this last group is seen in figure 1. Here the clinical findings would lead one to expect a decreased circulation, yet the opposite is shown by the oscillogram. The skin temperatures do not correlate with the oscillogram findings showing no change.

FRACTURES

Thirty-eight fractures were examined in patients ranging in age from 7 to 88 years. Thirteen of these fractures were fresh, and 25 were old (occurring six months or more prior to hospital admission). Of the limbs with fresh fractures, two showed no change, three

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¹ Bishop L F and Nelson J Jr. *The History of Cardiology*. New York: Medical Life Press, 1927. p 71.

² Willis R. *William Harvey: A History of the Discovery of the Circulation of Blood*. London: C K Paul & Company, 1878. pp 13-41.

³ Swammerdam J. *The Works of William Harvey*, translated by R Willis. London: Sydenham Society, 1847. pp 89-141.

⁴ Roback G S. *The Peripheral Arterial Pulse Pattern as Measured by a Volume Recording Oscillogram*. thesis. Chicago: Professional College of the University of Illinois, 1951. pp 2-5 and 29-30.

⁵ Johnson C A. *The Johnson Recording Oscillogram*. Chicago: W M Welch Scientific Company, 1950.

⁶ Wiggers C J. *The Pressure Pulses in the Cardiovascular System*. Monographs on Physiology. New York, Longmans Green & Company, 1928.

⁷ Johnson C A. *The Measurement of Pulsatile Arterial Circulation*. Surg Gynec & Obst. 93: 735-754 (Dec.) 1951.

showed an increase, and eight showed a decrease in arterial pulsation, in the chronic group, nine showed an increase, seven showed no change, and nine showed a decrease in pulsation. In these groups the findings are varied. The majority of limbs with fresh injuries showed a decreased circulation, probably due to diminishing of the arterial vascular bed by vasospasm and swelling



Fig 1—Oscillometric recordings of pulse waves in the legs of a patient who has had osteomyelitis with drainage in the left leg for 30 years. Note that the pulse waves are larger in the involved leg yet the skin temperatures in both legs are equal.

Among the patients with old fractures, those who showed increased pulsation had considerably more scarring and edema than did the others. Figure 2 shows an example of this. Again it is noted that skin temperatures and oscillometric readings do not correlate.

VASCULAR DISTURBANCES

Oscillometric readings were obtained in several patients with extremity injuries that resulted in vascular disturbances. Findings in these patients were as would be expected, with one or two exceptions. Four patients with Volkman's contracture revealed marked diminution in the circulation as well as some decrease in skin temperature. One patient with thrombosis of the abdominal aorta, who had previously had a sympathectomy, showed bilateral decreased circulation by oscillometry but no decrease in skin temperature. One patient with thrombosis of the femoral artery showed a considerable decrease in the amplitude of the pulse wave along with an increased crest time. A patient with femoral vein thrombosis revealed a tremendous increase in the arterial pulsations, as did one with an arteriovenous fistula at the wrist. Several patients were studied following treatment by lumbar sympathetic blocks. Some of these

showed an increase in skin temperature but no increase in pulse wave amplitude. Others showed an increase in both skin temperature and arterial pulsation. Sympathectomies were done on two of these patients by the peripheral vascular service, with a resulting increase in each of skin temperature as well as pulse wave, however, the increase was greater and persisted longer in the patient who showed by oscillometry increased circulation following this treatment than in the one who showed no such increase. It was also noted that, following lumbar block, a decrease in amplitude occurred in the pulsations of the unblocked side, which lasted for a short time.

MISCELLANEOUS DISORDERS

Many other orthopedic conditions were studied with the recording oscillogram, but no consistent changes or abnormalities were revealed. In this group are cases of herniated intervertebral disk, low back pain, tuberculosis of the vertebrae (Pott's disease), club feet, congenitally dislocated hips, arthritis, and slipped femoral epiphysis. The effects of smoking were studied on several persons, and it was found that a single cigarette could decrease the arterial pulsation by as much as one-third in some persons. All persons tested showed some decrease.

COMMENT

In reviewing the cases studied on the orthopedic service in the past year, two observations were made repeatedly. The first was that skin temperature did not correlate in many instances with the oscillometric findings. The second was that an increased pulse wave on the involved side was noted in cases of chronic osteomyelitis, nonunion of fractures, and scarring and tissue damage severe enough to produce an obstruction to venous return.

To explain the first of these observations, namely, that skin temperatures and oscillometric readings do not

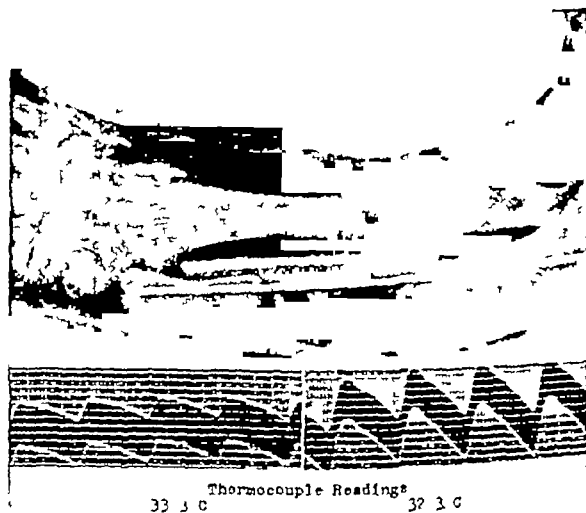


Fig 2—Oscillometric recordings of pulse waves in the arms of a patient who has ununited fractures of both bones of the left forearm and who has undergone multiple grafting procedures. The involved arm shows a decided increase in the oscillometer reading (at right in figure) but the skin temperatures of both arms are about the same.

correlate, we rely on the theory that skin temperature is governed by the heat regulating center of the body. Thus, the skin temperature will change as the body tries to gain or lose heat independently of the circulation to the deeper

structures. The second observation is more difficult to explain. Some observers feel that venous obstruction in some way interferes with the control of the vessels so that arterial blood is driven through the extremity with increased force, perhaps in an effort to overcome the damming-back effect of the venous block. Others feel that the increased pulsation is due to a "water hammer" effect, the pulse wave striking a stagnant blood column and the impulse being thus accentuated. At present, there is no satisfactory explanation for the phenomenon. Attempts to reproduce the finding by creating venous stasis with a tourniquet on the leg were unsuccessful, as was ligation of the femoral vein in a dog. Ligation of the iliac vein along with the popliteal vein in the dog produced increased amplitude of the pulsations, however, this was not permanent and did not occur in all instances.

The recording oscillogram is still in its infancy and considerably more study will be necessary before accurate interpretations of the readings are possible. It is the opinion of the staff in this department that, while the instrument may be useful diagnostically, its use at

present should be primarily experimental and that clinical judgment should take precedence in arriving at decisions about treatment.

SUMMARY AND CONCLUSIONS

A graphic method of recording extremity blood flow in orthopedic conditions is described. Results of studies on patients with poliomyelitis, osteomyelitis, fractures, vascular disturbances, and miscellaneous conditions are reported. The following conclusions are reached: 1. Patients with poliomyelitis show a decreased arterial circulation, which can be correlated, in most instances, to the decrease in the muscle mass and length on the involved side. 2. Skin temperature does not correlate with the oscillometric findings in many cases. 3. Venous stasis results in increased arterial pulsations on the involved extremity. 4. The recording oscillogram is a useful instrument that warrants further study. 5. Clinical judgment should take precedence in arriving at decisions about treatment.

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ANTICOAGULANTS AND SYMPATHETIC NERVE BLOCKS IN THE TREATMENT OF VASCULAR LESIONS

EFFECTIVE THERAPEUTIC COMBINATION

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When a major vessel, either an artery or a vein, is directly or indirectly traumatized, a reflex syndrome is established. This occurs whether the trauma is caused by an injury or is the result of a reflex initiated by a plaque on the lining of a diseased artery or a soft clot in a vein. The exact mechanism of the resultant action is not understood clearly. The synapse may occur (neurogenic theory) by afferent stimuli from the site to the cord and ganglia involved with efferent stimuli to the involved vessel and its collateral supply. The stimulus may cause a chemical reaction (chemical theory) in which a biological stimulus, such as epinephrine, sympathin, or spastin, is liberated into the blood stream to cause the effect. The mechanism is not important, it is sufficient to recognize that it occurs. An example of the action of this reflex protector is the flush of the face when one becomes angry or the pallor of fear. The inability of race horses to stand still at a starting gate is due to the nervous reflex tension built up by the excitement of the race and the increased blood supply in the legs. This reflex action is physiological and is one of nature's defenses against trauma. When a vessel is injured, nature causes a spasm that reduces or controls hemorrhage and that squeezes from the vessel all of the residual blood before it clots, therefore, if continuity of the injured vessel can be obtained again, the vessel will be open to carry the blood supply. At other times, this normal reflex becomes a pathological one. The clot or plaque on the intima may continue to cause the spastic reflex, and, thereby, initiate a chain reaction. This stimulus sets in action more spasm that in turn causes further development of the clot. This clot causes

more spasm in the affected vessel and in its collaterals, and a vicious circle is established.

There are two main points in the therapy of such abnormal spasm. One is to reduce the spasm itself, and the other is to prevent further clotting. In order to perform the first, the sympathetic chain reaction must be broken. The best place to achieve this is at a sympathetic ganglion. An easy way to achieve this is to perform a sympathetic nerve block. At the same time, and also thereafter, the tendency exists for the clot to propagate itself because the blood vessel has been damaged, the current has been slowed, and some permanent intimal changes are already present. The use of antithrombotic drugs at this stage will help to restrict the propagation of a clot and possibly will help to liquefy the ones that are already present.¹

It has been shown in animals that considerably more trauma is required to thrombose an artery that has anticoagulant substances in its blood. Similar experiments proved that a temperature lower than usual is required to cause blood sludging and frostbite if the anticoagulant factors are already present in the blood.² For several years, there has been a great fear of combining the two

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1 Wright I S. George E Brown Memorial Lecture. The Pathogenesis and Treatment of Thrombosis. *Circulation* 5:161 1952. Personal communications to the author.

2 Blalock A and Mason M F. Comparison of Effects of Heat and Those of Cold in Prevention and Treatment of Shock. *Arch Surg* 42:1054 (June) 1941.

3 Cole F and Kleitsch W P. Incompatibility of Lumbar Block and Anticoagulant Therapy. *J A M A* 147:1233 (Nov 24) 1951. O'Connor W, Preston F W and Thels F V. Retroperitoneal Hemorrhage Following Lumbar Sympathetic Block During Treatment with Dicumarol. Report of Fatality. *Ann Surg* 131:575 1950.

types of therapy.³ Physicians have reported deaths from hemorrhage caused by sympathetic nerve blocks that were performed in patients who had hypoprothrombinemia from anticoagulants.⁴ Especially in the surgical field, surgeons feared such an event, and some physicians have stated that they would rather see their patients die of embolism than see them bleed to death.⁵ These views and statements vary so greatly from the experience and teaching of the Vascular Surgical Clinic, that I have reviewed all of the patients treated with anticoagulants and sympathetic nerve blocks, as well as the complications of that therapy.

At the clinic, we believe that there is no incompatibility in the two types of therapy. The physician directing the treatment must know the drugs, their action, and his patient's reaction to them, and he must use suitable safeguards in management. In addition, care must be taken in the technique of performing a sympathetic nerve block. While hemorrhage occasionally occurs, the few deaths reported have been due to technical errors in performing the block (tearing large vessels) and to hypoprothrombinemia, caused by excessive amounts of anticoagulants in the blood that were not taken into consideration.

Since 1945, the clinic has used these two methods simultaneously as a therapeutic measure. Sympathetic nerve blocks have been performed on 554 patients who were receiving antithrombotic drugs. From one to fourteen blocks have been performed on these patients, with an average of four to each patient. Thus there have been over 2,100 sympathetic nerve blocks done in this series. There has not been a single instance of postblock bleeding. It is significant that in the same period members of the clinic have been called in consultation to see three patients not receiving anticoagulant drugs in whom massive retroperitoneal hemorrhages developed after sympathetic nerve blocks. These three cases are significant. We believe that bleeding associated with nerve blocks is due to technical errors and is oftenest of traumatic origin. We do not believe that the simple puncture of a vessel in performing these blocks causes the serious hemorrhages reported. At times, before injecting the procaine hydrochloride, we have aspirated blood into a syringe, and, after replacing the needle, we have continued the block with no accidents. If a needle puncture would cause uncontrollable bleeding in a patient receiving anticoagulant therapy, there would be innumerable hemorrhages of the arm after blood is drawn for determination of prothrombin time and there would be bleeding from the slight nicks resulting from shaving. It is our thought that, if a severe hemorrhage is to occur, a large vessel has to be torn. In most nerve blocks, the vessel pierced is a lumbar vein. Unless this is torn into the vena cava, the large protecting iliopsoas muscle closes it off promptly.

Antithrombotic Drugs in Surgical Patients—It is of interest that between 1945 and 1952, 494 general surgical patients have been treated either therapeutically or prophylactically with antithrombotic drugs at the clinic. In this large group, there have been only nine hemorrhages (1.8%), six were the result of excessive doses of anti-

coagulant drugs and three were due to insecure wounds. In the same group of patients, one died. He had undergone surgery to achieve a spleno-renal shunt to relieve bleeding esophageal varices. Although he was receiving antithrombotic drugs, hypoprothrombinemia was at a safe level. The autopsy showed that ulcerated esophageal varices were the source of the bleeding. While we considered the drugs a possible factor in the bleeding, other patients have bled similarly when the varices ulcerated even though they were not receiving anticoagulant therapy. This patient's failure to stop bleeding when the hypoprothrombinemia was reversed was further evidence that the drugs were not the cause of the fatal bleeding.

Bleeding from Hypoprothrombinemia—In using drugs such as coumarin, there will be an occasional episode of bleeding due to overdosage, some laboratory error, or sensitivity to the drug. Therapy at such a time must be prompt and continuous. Fresh whole blood will supply the needed prothrombin. Blood from a blood bank, especially an old supply, will be less effective. This point must be understood, as most blood banks dispense the oldest blood first. Accidents have occurred from this cause alone. The prothrombin supplied by whole blood lasts from two to four hours before it is used up, the prothrombin time will rise again unless more is supplied. One cannot permit the prothrombin supply to be exhausted before a fresh supply is added.

In like manner, vitamin K will stop nearly all bleeding if given regularly and continuously. The vitamins K and K₁ are normal components of the body. If using the sympathetic naphthoquinones available, very large amounts must be administered. If vitamin K is used, it should be given intravenously in doses of from 64 to 72 mg. Some physicians have tried to control bleeding with small doses of vitamin K, sometimes even administering it by mouth, such therapy fails.

Synthetic substitutes for vitamins K and K₁ can supply only 40% of the basic needs of the body. Vitamin K₁ is available as an emulsion for intravenous use. It begins to change the prothrombin level in 15 minutes and reverses it in from 4 to 15 hours. Again, vitamin K₁ must be supplied regularly until the bleeding tendency is counteracted both clinically and microscopically. A mere drop in the prothrombin time is not proof that the danger is over. Therapy should be continued for at least 24 hours after all bleeding has ceased.

In a series of 1,170 patients treated at the clinic, anticoagulants were administered intravenously for 24 hours in 430 patients, for more than 24 hours in 35, and in massive doses in 28 (200 mg. heparin per cc.). Thirty-two patients were given a heparin preparation (Thrombocoid) intravenously, while 645 received no anticoagulants intravenously. In the same series, 758 patients were given bishydroxycoumarin (Dicumarol) parenterally, 360 were given ethyl biscoumacetate (Tromexan ethyl acetate), and 12 were given other anticoagulants in the same manner. Forty patients were not given anticoagulant medication by mouth. In our total of 1,170 patients, 494 had surgical wounds. The incidence of hemorrhage in this latter group was 1.8%, with a bleeding incidence of 0.4% in cases in which prothrombin time indicated a therapeutic but not an unsafe level.

4 Vander Veer J B, Parker A P and Boyer F R. Emergency Appendectomy in a Patient Receiving Anticoagulants for Myocardial Infarction. J A M A 149: 1307 (Aug 2) 1952.

5 Lilly G D and Lee R M. Complications of Anticoagulant Therapy. Surgery 26: 957 1949.

SUMMARY AND CONCLUSIONS

It is likely that serious and fatal hemorrhages have been blamed on anticoagulant drugs, when lack of skill on the part of the person administering them was the true cause. We have been through the phase of dangerous and fatal anesthesia given by untrained interns and nurses. Thiopental (Pentothal) sodium or spinal anesthesia will kill in seconds if incorrectly administered. Patients have died from tension pneumothorax because someone did not know enough to aspirate the air from the pleura. Yet, we do not hesitate to use these anesthetics or to open the chest. We do, however, demand that the ad-

ministrator know the anesthetic and how to handle it. We also make certain that the postoperative period after thoracic surgery is correctly handled. As with other therapeutic modalities, the safety of anticoagulant drugs, as well as sympathetic nerve blocks, used singly or in combination, depends entirely on the ability and knowledge of the person who is administering them. If due precautions are exercised, these two complementary forms of therapy can be used together safely for the benefit of the patient.

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CARCINOMA OF THE COLON COMPLICATING CHRONIC ULCERATIVE COLITIS

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and

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The development of carcinoma of the colon in patients suffering from chronic ulcerative colitis has been the subject of much discussion since it was reported by Bagen¹ in 1928. This report comprises a brief review of the literature on the subject and the experience at University Hospitals of Cleveland during a 19 year period (1932-1950).

In the table is a summary of the reports in which the over-all incidence of carcinoma in patients with ulcerative colitis is given. The large number of cases reported by Lynn² constitutes a review of the literature up to 1945. Ten additional series found in the recent literature, in addition to our own cases, are also shown. The over-all incidence of carcinoma of the colon among 4,806 hospitalized patients with ulcerative colitis was 1.9%. The highest over-all incidence of carcinoma of the colon in ulcerative colitis was 6.3% among 95 children reported by Jackson, Bagen, and Helmholtz and included in the cases collected by Lynn². More recently, Felsen and Wolarsky³ reported that no carcinoma of the colon was found among 855 cases of ulcerative colitis. This is the largest series and the only recent report in which no carcinoma was encountered. Three series of less than 100 cases each were reported with no incidence of carcinoma prior to 1945.

Follow-up studies averaging 9.7 years were made by Sloan, Bagen, and Gage⁴ on 2,000 cases of ulcerative colitis seen at the Mayo Clinic from 1918 to 1938. Proved malignant disease was found in 88 (4.4%) of these cases. There were an additional 19 cases in which malignant lesions were suspected but were not proved histologically.

CASE MATERIAL

In the period from 1932 to 1950, 118 patients with ulcerative colitis were admitted to the University Hospitals of Cleveland. Four cases of carcinoma of the colon, an incidence of 3.4%, were diagnosed in this group. A fifth case was excluded because there was no clinical history of bloody diarrhea prior to admission. This patient was a 68-year-old white man admitted to the hospital after a 12 hour period of abdominal cramps

and vomiting. Laparotomy showed inflammation of the colon and a constricting lesion of the sigmoid. Pathologically the constricting lesion was a partially differentiated adenocarcinoma of the sigmoid with metastases to regional lymph nodes. The adjacent colon was the seat of chronic colitis. In spite of the pathological findings and the red, edematous appearance of the colon at surgery, this patient is not classified with the other four, since he did not have a definite clinical history of chronic diarrhea before surgery.

All four patients who had carcinoma of the colon were young (22, 29, 34, and 35 years old) when the disease was diagnosed. The average duration of symptoms prior to diagnosis of the malignant condition was 10.2 years (3, 9, 10, and 19 years respectively). Three cases were of the chronic, recurrent type of ulcerative colitis, and one was chronic sustained disease. Three patients had involvement of the entire colon, and in one the left half was involved. Two of the patients were men, and two were women. In one patient a second carcinoma was found in the remaining sigmoid colon at autopsy 17 months after surgery. All four had metastases to regional lymph nodes at the time of surgery, and two had pseudopolypoidosis. Three of the five carcinomas found in the four patients were adenocarcinoma and two were mucinous adenocarcinoma. Three lesions were in the sigmoid, one in the cecum, and one in the transverse colon. The longest survival after operation was 17 months. The other three patients died less than a year after operation, a fact that indicates the very serious nature of this complication.

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Owing to lack of space, some of the bibliographic references have been omitted from THE JOURNAL and will be included only in the authors' reprints.

1. Bagen J. A. Chronic Ulcerative Colitis Complicated by Malignant Neoplasia. *Arch Surg.* 17: 561-576, 1928.

2. Lynn D. H. The Relationship of Chronic Lesions to Carcinoma of the Colon—Chronic Ulcerative Colitis. *Collective Review Internat. Abstr. Surg.* 81: 269-276, 1945. In *Surg. Gynec. & Obst.* (Oct.) 1945.

3. Felsen J. and Wolarsky W. Chronic Ulcerative Colitis and Carcinoma. *Arch. Int. Med.* 84: 293-304, 1949.

4. Sloan W. P., Bagen J. A. and Gage R. P. Symposium on Diseases of Colon. Life Histories of Patients with Chronic Ulcerative Colitis. *Review of 2,000 Cases.* *Gastroenterology* 16: 25-38, 1950.

CASE REPORTS

CASE 1—A 34 year-old white man was admitted to University Hospitals of Cleveland on Nov 2, 1944. At the age of 14 he first noted diarrhea, and the condition was diagnosed as nonspecific ulcerative colitis. From that time the patient had many symptomatic exacerbations and remissions of varying duration and intensity. One and one-half weeks prior to admission to the hospital he experienced sudden, severe abdominal cramps accompanied by a visible and palpable "knot" in his abdomen. The cramping pains were intermittent and were accompanied by increase in the severity of diarrhea. The patient had lost an undetermined amount of weight and, on physical examination, was emaciated. There was a firm, fixed, supraclavicular node in the left side. The entire upper part of the abdomen was tender to pressure, and a visible, palpable mass appeared in the mid upper region of the abdomen every 10 minutes. This was accompanied by pain and gurgling. Intestinal obstruction was verified by a roentgenogram.

The patient was treated by intestinal intubation and supportive measures, and a barium enema showed a point of constriction in the mid transverse colon. Laparotomy with

was distended and diffusely tender. Roentgenograms showed distention of the colon to the sigmoid, and barium enema showed obstruction in this region.

At laparotomy the transverse colon was tremendously dilated. There was a constricting lesion in the upper sigmoid with considerable inflammation about it. Decompression was done, and, at a later operation, resection of the left colon with anastomosis of the hepatic flexure to the sigmoid was performed. The pathological report was partially differentiated papilliferous adenocarcinoma, with extension to adjacent tissues and regional lymph nodes, and ulcerative colitis. The patient was discharged from the hospital on Feb 23, 1947, but she died five months later from widespread metastases.

CASE 3—A 35 year old white woman was admitted to University Hospitals on Jan 16, 1949, with the complaint of an abdominal tumor complicating pregnancy. In 1940 she had first experienced the insidious onset of diarrhea, and in 1941, nonspecific ulcerative colitis involving the proximal colon was definitely established. Dysentery continued with minor remissions, and by 1942 the disease had progressed to involve the entire large bowel. In September, 1948, the patient first noted a persistent pain in the lower right quadrant of the abdomen. A tumor, believed to ovarian, became palpable in this location three months later. She was admitted to the hospital for laparotomy.

Physical examination showed, in addition to uterine enlargement consistent with a pregnancy of four and one half months, a tumor the size of an orange in the lower right quadrant, which was exquisitely tender. Abdominal exploration the day after admission revealed a mass involving the cecum, right colon, and right ovary and fallopian tube. These structures were removed and an ileotransverse colostomy performed. The pregnancy was interrupted by supracervical hysterectomy. Pathological diagnosis of the resected specimen was poorly differentiated carcinoma of the cecum with extension to the ovary, uterine tube, and regional lymph nodes. The resected ascending colon was the site of nonspecific ulcerative colitis. The patient had a stormy postoperative course, with development in the right flank of an abscess, which was incised. She was discharged improved but died 11 months later of carcinomatosis.

CASE 4—A 29 year-old white man was admitted to University Hospitals on Oct 1, 1949, with the chief complaint of chronic diarrhea of 10 years' duration. Examination showed that the patient was emaciated, dehydrated, and severely ill. The abdomen was distended and tympanitic, and roentgenograms showed diffuse involvement of the entire colon, with lack of haustrations and serrated margins of the barium column. He did not respond to medical treatment and, as a lifesaving measure, ileostomy was performed on Oct 14 with the patient under local anesthesia.

Recovery was slow postoperatively. The ileostomy wound broke down and healed very slowly. Plasma protein content dropped to 3.7 gm per 100 cc in spite of intensive parenteral therapy. The patient ate poorly and presented a severe psychiatric problem however, with tube feedings and finally with gastrostomy, his general nutritional state improved. Barium enema on March 16, 1950, revealed severe ulcerative colitis throughout the colon, with a constrictive lesion in the lower sigmoid.

Biopsy was positive for carcinoma March 20, and on March 27 the complete colon and rectum were removed, after which the patient made a satisfactory recovery. The pathological report was partially differentiated mucinous adenocarcinoma, with metastases to regional lymph nodes. The patient was discharged on May 21. He was readmitted to the hospital June 14 and died Aug 3, four and one half months after resection, with generalized abdominal carcinomatosis.

Undoubtedly delay in diagnosis occurred owing to masking of the symptoms of carcinoma by the ulcerative colitis. In retrospect, it can be said that he probably had a malignant lesion of the sigmoid colon at the time he was admitted, but this was not recognized until barium enema was given after improvement effected by ileostomy. The very malignant nature of this carcinoma is demonstrated by the short (four and one half months) survival after operation. Earlier ileostomy and colectomy might have saved this patient.

Reported Incidence of Carcinoma of Colon in Patients with Ulcerative Colitis

Authors	Cases of Ulcerative Colitis	Cases of Carcinoma of Colon in Patients with Ulcerative Colitis		Incidence of Carcinoma of Colon Among General Hospital Admissions %
		No	%	
Lynn, D. H. [*]	1,467	28	1.9	
Ricketts, W. E., and Palmer, W. L. Gastroenterology 7:55, 1946	200	3	1.4	
Cattell, R. B., and Boehme, E. J. Gastroenterology 8:69, 1917	450	9	2.0	
Johnson, T. M., and Orr, T. G. Am J Digest Dis 15:21, 1948	164	2	1.2	
Warren, S., and Sommers, S. Am J Path 25:657, 1949	120	9	5.0	
Svartz, N., and Ernberg, T. ^{10a}	290	9	3.1	
Felsen, J., and Wolarsky, W. [*]	8,5	0	0	0.8
Kaslich, A., Weingarten, B., and Brown, M. L. ^{10b}	143	7	4.9	
Hayes, M. A. Am J Surg 77:363, 1949	451	3	0.7	0.5
Gleickler, W. J., and Brown, C. H. ^{10c}	316	12	3.8	
Lyons, A. S., and Garlock, J. H. ⁷	226	0	3.0	
Weckesser, E. C., and Chinn, A. B.	118	4	3.4*	0.6
Totals	4,800	65	1.8	0.6

* A 0.06% incidence was estimated among an age group of the general population similar to that of the 118 cases in this report.

resection of the transverse colon was carried out on the 15th hospital day. The pathological diagnosis of the resected specimen was a well-differentiated, mucinous adenocarcinoma of the transverse colon with extension into the omentum and metastases to regional lymph nodes. There was also acute, chronic ulcerative colitis. The patient was discharged on the 38th hospital day.

On March 28, 1946, the patient was readmitted in an advanced state of cachexia and died on the 17th hospital day. At autopsy, in addition to widespread carcinoma in the upper abdomen, a separate, new, well-differentiated adenocarcinoma of the sigmoid with direct extension to the serosa was found. Today ileostomy and colectomy would have been done on this patient, although it is questionable whether the outcome would have been different, because of the advanced stage of the carcinoma of the transverse colon at the time of operation.

CASE 2—A 22-year-old white woman was admitted to University Hospitals on Jan 20, 1947, with the complaint of abdominal pain. For three years she had been subject to dietary upsets with nausea, vomiting, and diarrhea. One month before admission the patient noted abdominal pain and an occasional loose stool. This was soon followed by generalized abdominal cramps, nausea, vomiting, and diarrhea with 18 to 20 stools per day that persisted up to the time of admission. On examination the patient was emaciated and chronically and seriously ill. She was in severe pain, and her abdomen

COMPARATIVE INCIDENCE OF CARCINOMA OF COLON

In order to have some basis for comparison of the incidence of carcinoma among the hospital cases of ulcerative colitis, the incidence of carcinoma among the general hospital admissions was determined. In the five year interval 1946 to 1950 inclusive, there were 41,154 admissions to the combined general surgical and general medical services, where carcinoma of the colon was most likely to be seen. Of these patients, 262 (0.63%) had carcinoma of the colon. The fact that these persons were admitted to the hospital makes this an incidence of carcinoma of the colon among persons who already were ill. This figure is considerably smaller than either the 3.4% incidence in our series of patients with ulcerative colitis, or the 1.9% incidence among all collected cases of ulcerative colitis. From the U. S. Public Health Reports in 1944⁶ it is estimated that the incidence of carcinoma of the colon in an age group of the general population similar to the 118 cases of this report is 0.06%. This incidence is less than 1/50 of that among our cases of ulcerative colitis.

DURATION OF COLITIS AND CARCINOMA

More important than the over-all incidence of carcinoma in ulcerative colitis is the incidence of carcinoma among long-standing cases of the disease. It is in this category that prophylactic surgery may possibly be employed. Among our 118 cases, 23 patients had symptoms of ulcerative colitis for 10 years or more, and 2 of these (9%) had carcinoma. Conversely, 95 patients had symptoms of ulcerative colitis for less than 10 years, and 2 of these (2%) had carcinoma. Cattell⁶ states that among patients having ulcerative colitis nine or more years and treated surgically, carcinoma of the colon develops in one-third. Lyons and Garlock⁷ encountered nine malignant conditions (36%) among 25 surgically treated patients with ulcerative colitis of 12 years' duration or longer. Dennis,⁸ in discussing a paper by McKittrick and Moore, states that in 15% of the five-year cases, cancer of the colon develops.

Shands, Dockerty, and Bagen⁹ studied the clinical histories and pathological specimens of 73 cases of carcinoma of the colon complicating ulcerative colitis. The average duration of symptoms prior to the development of carcinoma was 15.3 years. In 75% of these cases ulcerative colitis had existed for more than 10 years prior to the development of malignant lesions. These authors conclude that the likelihood of development of secondary carcinoma in the large bowel in cases of ulcerative colitis increases with the duration of the disease, that quiescence of the disease for as long as 10 years gives no assurance against the development of carcinoma, that the prognosis is very poor when malignant lesions develop, and that, if improvement in prognosis is to be expected, colectomy must be performed as soon as the diagnosis is established.

COMMENT

Our patients with carcinoma of the colon were all under 35 years of age. The fact that carcinoma develops at an early age in patients with ulcerative colitis has also been noted by others,¹⁰ and the very malignant nature of the complication has also been noted.¹¹ The longest survival in our cases was 17 months after operation.

Lahey^{11a} reports only 2 living patients among 18, and in these 2 the diagnoses were made only by the pathologist after removal of the colon. Lahey believes the short survival is attributable to both the very malignant nature of carcinoma associated with an inflamed colon and late diagnosis because of masking of the symptoms of malignancy by the ulcerative colitis. Shands, Dockerty, and Bagen⁹ report two known five-year survivals among 73 cases, and Turnbull and Brown¹ recently reported two five-year survivals following removal of carcinoma of the colon in persons with ulcerative colitis.

The very short survival following removal of established carcinoma of the colon in patients with ulcerative colitis constitutes a serious problem. The colon must be removed before malignant disease develops if these patients are to be saved, but how can we detect those who may later have carcinoma? It seems, from our experience as well as that of others,¹³ that persons with severe, long-standing ulcerative colitis are susceptible to malignant change. Pseudopolyps are another probable predisposing factor, although this is not definitely proved. They were present in two of our cases of carcinoma. Shands, Dockerty, and Bagen⁹ found pseudopolyps in 75% of the patients with ulcerative colitis having multicentric carcinomas and in only 16% of those with a single carcinoma.

Lahey^{11a} advocates colectomy in all persons requiring ileostomy. The indications for ileostomy are acute exacerbation of disease not responding to medical therapy, hemorrhage, perforation, obstruction, joint involvement, multiple fistulas, and polyposis. Other excellent discussions of surgical indications in ulcerative colitis have also appeared.¹⁴

Our indications for ileostomy are acute or intractable disease not responding to medical therapy in a definite time interval, severe local complications such as hemorrhage, perforation, fistulas, and obstruction, and severe systemic complications such as arthritis and ulcerations of the skin and mucous membranes. Indications for colectomy are severe, long-standing ulcerative colitis, severe hemorrhage, perforation, polyps or carcinoma, and failure of ileostomy to control disease.

At present it is our opinion that persons with long-standing, severe ulcerative colitis who require ileostomy and those with polyposis should have prophylactic colectomy. This may be done in one stage.¹⁵ If the surgeon is not experienced with this type of operation, however, the multiple stage procedure is probably safer. The rectum should be removed if it is severely diseased. If left in place it should be examined endoscopically at least twice a year to detect the development of malignant disease.

6 Cattell R B. The Surgical Treatment of Ulcerative Colitis. *Gastroenterology* 10: 63-66 1948.

7 Lyons A S and Garlock J H. Relationship of Chronic Ulcerative Colitis to Carcinoma. *Gastroenterology* 18: 170-178 1951.

8 Dennis C. In discussion on McKittrick L S and Moore F D. Ulcerative Colitis: Ileostomy Problem or Solution? *J A M A* 139: 201-207 (Jan 22) 1949.

9 Shands W C, Dockerty M B and Bagen J A. Adenocarcinoma of the Large Intestine Associated with Chronic Ulcerative Colitis. *Surg Gynec & Obst* 94: 302-310 1952.

10 (a) Svartz N and Ernberg T. Cancer Coli in Cases of Colitis Ulcerosa. *Acta med scand.* 135: 444-447 1949. (b) Kasich A M, Weingarten B and Brown M L. Malignant Degeneration in Ulcerative Colitis. Report of 7 Cases. *M Clin North America* 33: 1421-1437 1949. (c) Gleckler W J and Brown C H. Carcinoma of the Colon Complicating Chronic Ulcerative Colitis. *Gastroenterology* 14: 455-464 1950. Shands and others.*

We have had little success in reestablishing the continuity of the bowel after ileostomy, however, the rectal segment can be readily and completely inspected with a short proctoscope in the office, and it provides a possible means of restoring continuity of the bowel if the cause and cure of ulcerative colitis are established in the future. Colectomy may be not only a lifesaving procedure in malignant disease but also a means of preventing other local and systemic complications of ulcerative colitis.

Our experience with ileostomy in the treatment of ulcerative colitis has been comparable to that of McKittrick and Moore.^{14b} We have attempted always to gain psychological acceptance of the ileostomy by the patient prior to its performance. Most patients have gladly accepted an ileostomy and good health in place of the chronic invalidism of severe ulcerative colitis.

SUMMARY AND CONCLUSIONS

The incidence of development of carcinoma of the colon in persons with ulcerative colitis as reviewed in the literature is 1.9%. Among 118 patients with ulcerative colitis admitted to the University Hospitals of Cleveland, four (3.4%) also had carcinoma of the colon. All patients were 35 years old or less. The longest survival following surgery was 17 months.

The incidence of carcinoma of the colon among hospital patients in general surgery and general medicine over a five year period (1946-1950) was 0.6%. The estimated incidence of carcinoma of the colon in a similar age group of the general population was 0.06%. The average duration of symptoms of ulcerative colitis prior to development of malignant disease was 10.2 years. Among the patients who had ulcerative colitis 10 years or longer, the incidence of malignant disease was 9.0%.

The indications for ileostomy and colectomy are discussed. In view of the very serious nature of malignant disease as a complication of ulcerative colitis, the desirability of prophylactic colectomy in persons requiring ileostomy for long-standing, severe ulcerative colitis and in persons with pseudopolypoidosis is discussed.

There is a significant incidence of carcinoma of the colon in patients with ulcerative colitis, and the incidence rises with the duration of ulcerative colitis. Carcinoma of the colon complicating ulcerative colitis has a very poor prognosis. Prophylactic colectomy is indicated in persons requiring ileostomy for long-standing, severe ulcerative colitis and in those with pseudopolyps.

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Rupture of the Bladder—Rupture of the urinary bladder is not a serious injury if recognized promptly and treated properly. If neglected, however, the reverse is the case. In any injury involving the pelvis or the spine, or a sudden crushing injury or fall which would result in a change of hydrostatic pressure, such a possibility must be recognized. The surgeon should always inquire if the patient had a full bladder at the time of injury. Accurate diagnosis may be made by relatively simple measures, such as blood in the urine, the passage of a catheter with negative results, and failure to obtain the return of simple sterile water or saline solution inserted into the bladder. Catheterization should always be performed in patients with back, abdominal, or pelvic injuries. A rupture of the bladder may be temporarily treated until further aid can be obtained by leaving the catheter *in situ* or establishing a simple suprapubic drainage. It is an injury all too often overlooked.—F B Berry, M D, Trauma and the Urinary Bladder, *A M A Archives of Surgery* May, 1953

CLINICAL NOTES

MEDIASTINAL LIPOMA SIMULATING CARDIAC ENLARGEMENT

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and

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This case of a mediastinal lipoma is reported because, by its location and shape, it so closely simulated cardiac enlargement. Mediastinal tumor is not usually considered in the differential diagnosis of enlargement of the cardiac silhouette. Lipomas are uncommon intrathoracic neoplasms. Thirty-five of the 56 intrathoracic lipomas reported to date were in the mediastinum,¹ and only two of these lipomas were confused with cardiac enlargement. One was in Yater and Lyddane's series,¹⁴ and the other was presented by Sosman and Levine at a clinic during the annual meeting of the American College of Physicians in Boston in 1949.

REPORT OF A CASE

A 30 year old white man who was an automobile salesman was admitted to the hospital on Jan 10, 1952. On admission, the diagnosis cardiac enlargement with cause undetermined was made. The patient had been recalled to active duty as a Navy fighter pilot. During the routine physical examination prior to his induction, a chest roentgenogram showed cardiac enlargement, therefore, he was rejected from active Navy duty. He was referred to the hospital so that the cause and nature of the cardiac enlargement might be determined. The patient had always considered himself to be in good health and had no complaints. He gave no history of rheumatic fever, hypertension, syphilis, angina pectoris, hyperthyroidism, or nephritis that might explain the cardiac enlargement. A chest roentgenogram of the patient's chest, taken when he was discharged from the Navy in July 1946, apparently showed nothing abnormal. The patient had had a chest roentgenogram taken by a mobile x-ray unit a year prior to admission, and he was informed that it disclosed nothing unusual. An attempt to obtain this roentgenogram was unsuccessful. He had never had an electrocardiogram prior to admission. There had been no change of weight in the past few years. Review of the patient's habits, family history, past illnesses, and a review of symptoms by systems failed to reveal any additional information.

On examination the patient appeared well developed and well nourished, and he did not appear ill. The blood pressure was 110 mm Hg, systolic, and 82 mm Hg, diastolic. The pulse, temperature, and respirations were normal. The physical examination revealed nothing abnormal except that the apex beat was not visible, it was weakly palpable at the left midclavicular line when the patient was placed in the extreme left lateral position.

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1 (a) Andrus W DeW and Heuer G J. Surgical Treatment of Tumors of the Mediastinum. *Surg Gynec & Obst* 63: 469-482, 1936. (b) Bradford M L, Mahon H W and Grow J B. Mediastinal Cysts and Tumors. *Surg Gynec & Obst* 85: 467-491, 1947. (c) Heuer G J and Andrus W DeW. The Surgery of Mediastinal Tumors. *Am J Surg* 60: 146-224, 1940. (d) McCorkle R G and Koerth C J. Diagnosis of Intrathoracic Tumors. *Texas State J Med* 39: 194-197, 1943. (e) McCorkle R G, Koerth C J and Donaldson J M Jr. Thoracic Lipomas. *J Thoracic Surg* 56: 568-582, 1940. (f) Yater W M and Lyddane E S. Lipoma of the Mediastinum. *Am J M Sc* 180: 79-84, 1930. (g) Heuer G J. Thoracic Lipomas. *Ann Surg* 98: 801-819, 1933. (h) Wiper T B and Miller J M. Intrathoracic Mediastinal Lipoma. *Am J Surg* 66: 90-96, 1944. (i) Barlety M and Coury C. Les Lipomes du Mediastin. *Semane hop Paris* 26: 1968-1975, 1950. (j) Griffin E H and Guilfoill P H. Mediastinal Lipomata. A Case Report. *Ann Surg* 128: 1038-1040, 1948.

To the left, there was an increase in percussion dullness that extended to the anterior axillary line in the fifth intercostal space. The heart sounds were faint at the apex and were loudest at the second intercostal space just right of the sternum. There was an accentuated aortic second sound. Auscultation of the heart failed to reveal murmurs or pericardial friction rubs. The cardiac percussion findings were unchanged by altering the position of the patient. On percussion the heart was not enlarged to the right, and there was no sternal heave. Funduscopic examination failed to reveal arteriosclerosis or hypertension. There was no clinical evidence of increased venous pressure, tracheal tug, pulsus paradoxus, or Ewart's sign.

Laboratory studies, including urinalysis, complete hemogram, Kahn complement fixation, basal metabolism, liver function, tuberculin tests, and test for echinococci, all gave normal results. The venous pressure was 39 mm of water. Dehydrocholic acid (Decholin) circulation time was 15 seconds. An electrocardiogram gave normal results.

A routine chest roentgenogram was interpreted as revealing cardiac enlargement (fig 1), however, because of reasons that are discussed later, more extensive roentgenographic studies were undertaken. The initial impression from fluoroscopic examination was that the cardiac shadow appeared to be enlarged to the left. With barium in the esophagus, however, it was noted that on rotation, the ventricular margin cleared the spine sufficiently to indicate that there was no left ventricular enlargement. There was no deviation of the esophagus. The lateral border of the cardiac shadow had diminished pulsations. In the left side of the heart shadow, there was a poorly defined margin that appeared to be where the left cardiac border should be and that displayed active pulsation. The lungs were clear.



Fig 1—Cardiac shadow appears enlarged in roentgenogram of the chest on admission.

The radiologist's final statement was that the shadow represented an epicardial mass inseparable from the left ventricle and that this mass was probably a tumor, a cyst, or a collection of fluid. A laminogram of the chest revealed a large tissue mass that appeared to arise from the left border of the heart in the region of the left ventricle. An upper gastrointestinal roentgenographic study failed to disclose a diaphragmatic hernia that could account for the chest shadow.

The patient's chest was explored surgically by one of us (P J) on Feb 15, 1952. In the anterior mediastinum, attached to the pericardium and beneath the pleura, there was a lipoma that was excised. This lipoma measured 18 by 11 by 8 cm. Microscopic study of the tumor revealed normal adipose tissue. The patient's postoperative course was uneventful, and he was discharged on Feb 22, 1952. A postoperative roentgenogram of the chest presented a normal cardiac silhouette (fig 2).

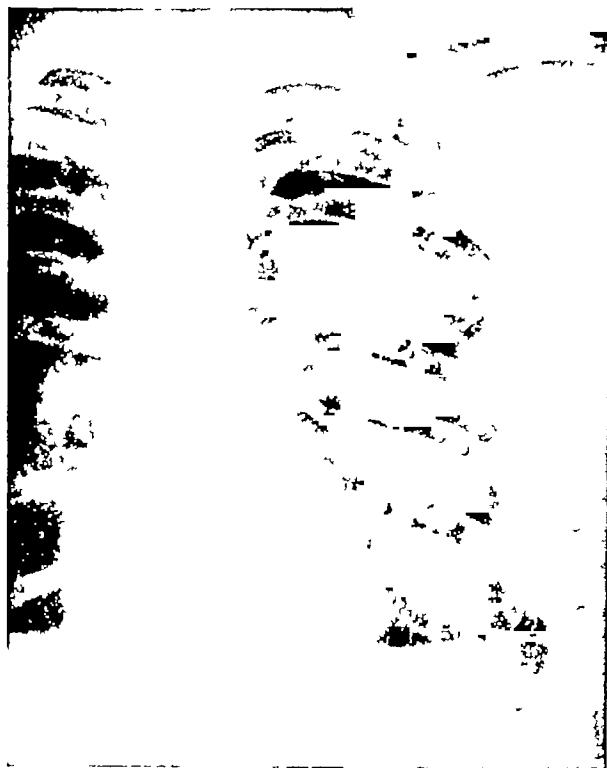


Fig 2—Cardiac shadow appears normal in roentgenogram of the chest after surgery.

COMMENT

Although this patient was admitted to the hospital with a diagnosis of cardiac enlargement, it was suspected, from the asymptomatic course and the absence of causative factors, that the apparent cardiac enlargement was either an extracardiac anomaly or a cardiac tumor.

The increased cardiac dullness with obliteration of the apical impulse and the faint heart sounds raised the question of pericardial effusion. There were, however, several factors that seemed to contradict this diagnosis, such as absence of elevated venous pressure, paradoxical pulse, electrocardiographic changes, or Ewart's sign and increased dullness to the right or left in the second intercostal space. Furthermore, the cardiac shadow remained the same radiographically whether the patient was erect or supine. On the basis of evidence available, it appeared that the lesion was more likely to be in the pericardial space than in the myocardium and more likely to be solid than fluid. It was the consensus of those who saw this patient that the mass was most likely a myxoma, but that a cystic neoplasm or parasitic cyst should be considered.

One of us (A M G), on the basis of the similar case presented by Sossman and Levine, suggested the diagnosis of mediastinal lipoma. Sossman emphasized the increased transparency of the lipoma shadow when in com-

parison to the usual dense cardiac shadow Heuer,^{1c} in his series of cases, also brought out the fact that, in a roentgenogram, the shadow cast by a lipoma is characteristic Storey and Knutson,² in their case report, bring out the fact that, in a roentgenogram, fatty tumors cast shadows having a density midway between air and water, and they also state that 25% of mediastinal tumors are malignant, thereby emphasizing the necessity of early surgical intervention

The increasing incidence of routine and survey chest roentgenograms will lead to more frequent detection of lipomas as asymptomatic opacities. Positive identification will be accomplished only by exploratory thoracotomy or postmortem examination. The possibility of sarcomatous changes that demand immediate and complete excision has been stressed by several reports of malignant changes occurring in preexisting benign lipomas.³ The symptomatology in the reported cases varied from no symptoms, as in our case, to dyspnea, cough, and cyanosis, depending on the size, the location, and the structures distorted. The amount of fat and, therefore, the mobility and fluidity of the tumor govern the ability of the tumor to adjust to the surrounding structures rather than to obstruct or displace them.

SUMMARY

A case of mediastinal lipoma is reported because, by its location and shape, it so closely simulated cardiac enlargement. The characteristic roentgenographic evidence, the possibility of sarcomatous changes, and the necessity for surgical exploration are stressed. The differential diagnosis of cardiac enlargement rarely includes mediastinal lipoma, therefore, it is hoped that this report will cause this tumor to be considered in the diagnostic approach to enlargement of the cardiac silhouette.

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2 Storey C. and Knutson K. P. Liposarcoma of the Mediastinum. Report of Case with Associated Lipomas of Mediastinum and Subcutaneous Tissues. *J Thoracic Surg* 22: 300-315 1951

3 Stout, A. P. Liposarcoma—The Malignant Tumor of Lipoblasts. *Ann Surg* 119: 86-107 1944

Exposure Treatment of Burns—In children the nutritional state remains more nearly normal with treatment by the exposure method, largely because fear of painful changing of dressings and subsequent unwillingness to eat are eliminated. Better nutrition, the early use of whole blood transfusions to combat shock and the absence of the loss of blood entailed in changes of dressings helped to maintain the content of hemoglobin in the blood. However, frequent examination of the blood is as necessary as when any other form of therapy is used. The amount of skin grafting required is essentially the same as that needed when the pressure dressing method is employed.

Infants and young children should be hospitalized for the exposure method. Cooperative, intelligent older children and adults can have minor burns successfully treated by the exposure method as ambulatory patients outside the hospital. The exposure method is limited by the distribution of the burn, but not by its depth or extent. It was impossible to obtain adequate eschars over circumferential burns of the trunk and quite difficult to obtain them in cases of encircling burns of the extremities. Generally the exposure method should not be used in such cases. The exposure method is readily adaptable to burns limited to one surface of the body. It is particularly useful in treating burns of the face and perineum,⁴ as pressure dressings are difficult to apply in those areas and rapidly become soiled.—W. S. Kiskadden, M.D., and S. R. Dietrich, M.D., Evaluation of Exposure Treatment of Burns, *California Medicine*, December, 1952

BENIGN ULCER OF THE ESOPHAGUS ASSOCIATED WITH CHRONIC ACETANILID POISONING

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and

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The majority of benign esophageal ulcerations are believed to be peptic erosions analogous to peptic ulcer of the stomach and duodenum. This tenet is emphasized by the high incidence of esophageal ulcers in diaphragmatic herniations of the stomach in which the loss of the pinch-cock mechanism allows regurgitation of gastric juice into the esophagus. Another cause of esophageal ulcer is pressure from aneurysms or intubations. The disease has also been ascribed to infectious disorders, exanthematous fevers, debilitating diseases, and uremia. In reviewing the literature of esophageal ulcers for the past 20 years, however, we were unable to discover any report that this condition occurred as a sequel to drug poisoning. Therefore, the case we present of an esophageal ulceration presumably developing in a patient suffering from chronic acetanilid poisoning should be of general interest.

Chronic acetanilid poisoning is not so frequent now as it was 50 years ago, when the drug was used oftener and its widespread effects were not generally appreciated. Nevertheless, isolated reports have appeared on occasion to remind us of the dangers of the uncontrolled use of this medicament. The drug, as taken, is usually self-prescribed for chronic headache and is repeated by the patient at frequent intervals. After a variable period, there is some degree of habituation, and the user notices increasing headaches, for which he consumes more and more of the medicament. These larger doses in themselves induce headaches, thus a vicious circle is established.

The prominent symptoms of chronic acetanilid poisoning are cyanosis, dyspnea, and weakness. These are all attributed to anoxemia, the cause of which is disputed. Whether oxygen want is due to methemoglobinuria, sulfhemoglobinuria, or to one of the intermediate products derived from acetanilid is not considered in this paper. Cyanosis is constant and is of a bluish or blue-gray, slate color. After discontinuance of the drug, the user's color may not return to normal for several days.

The kidneys are affected in about 5 to 8% of the cases, irritation is manifested by albuminuria with or without red blood cells in the urine. With the use of large doses of acetanilid, an increase in urea and total nitrogen of 30 to 35% is not unusual, however, pathological examination of the kidneys at autopsy is not startling, it shows only cloudy swelling. As there is some effect on the kidneys, it is presumed that preexisting, chronic nephritis or other renal damage might enhance the toxic effect of acetanilid.

Blood studies usually reveal anemia with a decrease in the red blood cell count to about 3 million per cubic millimeter, an increased reticulocyte count, and erythropoiesis of the bone marrow. Polycythemia has been reported by Stengel¹ in one case. On the other hand,

Van Loon and Clark² demonstrated hemolytic anemia in the dog. Platelet counts are normal and are only rarely increased. Bleeding and coagulation times are not abnormal.³ It is not uncommon, in patients suffering from chronic acetanilid poisoning, for capillary fragility to be evidenced by the development of ecchymoses after slight trauma. Agranulocytosis is not a feature of chronic acetanilid poisoning, although there are reports of agranulocytosis resulting from the use of combinations of acetanilid and aminopyrine. The depressing action on the white blood cells is attributed to the aminopyrine, which is a known causative agent, whereas acetanilid alone has not shown this feature.

The gastrointestinal tract is generally not harmed by acetanilid. Significantly, autopsy reports only rarely describe gastrointestinal changes such as a catarrhal condition of the mucosa and an occasional capillary hemorrhage. In one fatal case of acute poisoning the patient passed sheets of mucous membrane and two large clots of blood through the anus 48 hours before death.⁴ The presence of esophageal ulceration in a case of chronic acetanilid poisoning, therefore, becomes an important and unexpected occurrence.

REPORT OF A CASE

A 53-year-old white housewife was admitted to the hospital on Oct 31, 1951, complaining of severe dysphagia, epigastric pain, and hematemesis of one day's duration. For the preceding two years, mild dysphagia had been manifested by difficulty in swallowing large particles of food. Soft foods and liquids were swallowed with ease and frequently a glass of water was utilized to facilitate the passage of more bulky foods. Nevertheless, the patient ate a varied and adequate diet. No previous roentgenographic studies had been made. She had lost 5 lb (2.3 kg) in six months. There were no other symptoms related to the gastrointestinal tract except for chronic constipation. Her other complaints were of persistent headaches since childhood and lumbar backaches over a period of about 10 years. There was a constant feeling of fatigue, and she experienced dyspnea at the least exertion. She had never menstruated and had never become pregnant. Her blood pressure had been elevated for more than 10 years. The patient remarked that for years she had bruised easily and always had at least one ecchymotic spot on her body. She was questioned in regard to drug intake and admitted at this time to taking an occasional headache powder, although later she admitted consuming many more. On the day before admission, the patient suddenly suffered moderate epigastric pain accompanied by a complete inability to swallow anything, even water. She vomited blood, and this continued through the night until her admission.

Physical examination at that time revealed a much dehydrated, acutely ill patient. Her color was striking, it was a peculiar slate gray pallor somewhat resembling argyria, but bluer in cast. Examination of the heart, lungs, and abdomen showed nothing remarkable. Blood pressure was 190/110 mm Hg.

Laboratory studies showed a hemoglobin level of 12 gm per 100 cc or 77% red blood cell count 3,810,000 per cubic millimeter, white blood cell count 9,650 differential count within normal limits, no abnormal cells and 276,000 platelets. Prothrombin time was 26 seconds, control was 15 seconds. Bleeding time was 2 minutes and 45 seconds and the coagulation time was 5 minutes. Kahn test was negative. Urinalysis showed specific gravity 1.008, 1+ albumin, an occasional red blood cell, and many white blood cells. Blood chemistry figures were glucose 148 mg per 100 cc and blood urea nitrogen 51 mg per 100 cc. The next day blood chemistry studies showed glucose 187, urea nitrogen 44.5, and creatinin 1.8 mg per 100 cc.

Roentgen study of the esophagus the morning after the patient's admission revealed an apparent organic obstruction in the mid third of the esophagus. The roentgenologist in-

terpreted the obstruction as suggestive of a neoplasm at that level (fig 1). For three days, food and liquids could not be given by mouth, and intravenous feeding was instituted consisting of glucose in isotonic sodium chloride solution and amigen and blood transfusions. Vitamins were given parenterally, 5 mg of vitamin K, 100 mg of vitamin C, and one ampul of liver extract were given daily. Penicillin, 300,000 units, was given twice a day. The patient vomited on the first day after admission, but this was not repeated thereafter. On the third day after her admission, liquids, which were given orally, were swallowed without difficulty. After seven more days a soft diet was prescribed and retained.

On Nov 6, 1951, a week after the patient's admission, esophagoscopy was performed. A marked annular narrowing of the esophageal lumen in the middle and lower thirds was revealed. This narrowing was circular and not completely obstructing but it was impossible to pass the instrument beyond the lesion. The mucosa was thickened, grayish, ulcerated,



Fig 1—Preoperative esophagram showing obstruction in the middle third

and firm when cut. At the time, the physician performing the esophagoscopy believed that the lesion was neoplastic. A biopsy was taken and reported as chronic inflammatory tissue. Unexpectedly, the biopsy gave no evidence of malignancy, but it was not considered conclusive, for negative biopsies of some esophageal neoplasms are not uncommon.

Those in attendance of the patient felt that a direct investigation of the esophagus as a diagnostic measure was necessary. On Nov 12, 1951, the 12th day after her hospitalization, the patient underwent a right thoracotomy performed through the sixth intercostal space. The esophagus was mobilized in its lower half and, during this procedure, the left

1 Stengel A. Chronic Acetanilid Poisoning. Report of Two Additional Cases. *J A M A* 45:243 (July 22) 1905.

2 Van Loon E I and Clark B B. Observations on the Hematologic Actions of Acetanilid and Acetophenetidin in the Dog. *J Lab & Clin Med* 29:942 (Sept) 1944.

3 Lowy O and Helms, S T. Preliminary Study of Physiological Effect of Acetanilid on Human Subjects. *M Rec* 140:561 (Nov 21) 1934.

4 Austin V T. Chronic Anemia and Leukopenia in Combined Acetanilid and Aminopyrine Poisoning. *J A M A* 120:911 (Nov 21) 1942.

5 Brown P K. Fatal Case of Acetanilid Poisoning. *Am J M Sc* 122:770 (Dec) 1901. Hemenway H B. Death from Bromo Seltzer. Case of Acetanilid Poisoning. *J A M A* 47:2158 (Dec 29) 1906.

vagus was resected. This portion of the esophagus was investigated carefully; no induration or thickening was discernible by inspection and careful palpation. No enlarged glands were palpable in the area of the lower half of the esophagus and around the hilum of the right lung. A moderate amount of straw-colored fluid was seen in the pericardial sac. The chest was then closed and a Pezzar catheter inserted for underwater drainage.

On the first postoperative day, liquids were given orally and were swallowed without difficulty. The postoperative course thereafter was essentially uneventful. The catheter in the pleural cavity was removed on the sixth postoperative day. Blood studies on the second day after the operation showed a urea nitrogen of 43 mg and creatinin of 3.6 mg per 100 cc, both returned to normal nine days later. The urine concentration test, made 11 days postoperatively, showed a specific gravity of 1.008, and excretion of phenolsulfonphthalein was 13% in the first specimen and 11.5% in the second specimen.

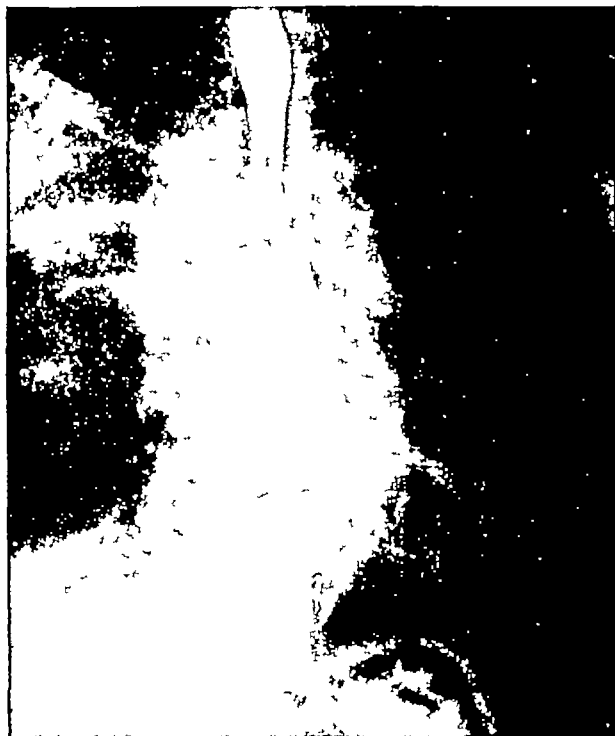


Fig 2—Postoperative esophagram showing patent esophagus

Another series of roentgenograms of the esophagus was taken 15 days postoperatively and showed a patent, smooth esophagus with no evidence of obstruction. The barium flowed evenly and rapidly through the lumen (fig 2). Over the two week convalescent period, the blue-gray color of the patient's skin gradually disappeared, and the usual pallor of secondary anemia became evident. The patient was discharged from the hospital on the 16th day after surgery.

In the follow up examinations, persistent hypertension was noticeable, the blood pressure varied from 260/150 to 220/120 mm Hg and was considered as a probable or contributory cause of her chronic headaches. The urine showed albuminuria, many casts, and occasional red blood cells. Capillary fragility was definite. Bleeding time was 8 minutes, and coagulation time was 6 minutes. Red blood cell count was 3,700,000 per cubic millimeter, hemoglobin 66% (10.5 gm per 100 cc), platelets 220,000, prothrombin time 15 seconds, and clot retraction time one hour. The plasma vitamin C level was 0.31 per 100 cc (normal 0.7 to 1.4 mg per 100 cc). Urea nitrogen was

12 mg and creatinin 1.1 mg per 100 cc. Urea clearance was 82.9% of normal. The complaint of dysphagia had disappeared completely and had not returned.

During these office visits, the patient stated that the headaches that had bothered her since adolescence had now almost completely disappeared. Further close interrogation revealed that she had been taking 6 to 10 headache powders called "Yum" daily for the past six years. Each powder contained 3.5 grains (0.22 gm) of acetanilid and 0.25 grain (0.015 gm) of caffeine alkaloid. This meant that she had ingested at least 20 grains (1.29 gm) of acetanilid daily. The usual toxic dose varies greatly, but disagreeable symptoms are likely to result from single doses larger than 4 grains (0.26 gm). There is much individual variability, however, in toxicity to this drug.

COMMENT

The patient in the case reported showed symptoms of acetanilid poisoning such as blue-gray cyanosis, dyspnea, weakness, mild anemia, and capillary fragility. Also present were hypertension and chronic nephritis, as well as mild dysphagia of two years' duration that suddenly became complete.

The cause of the esophageal ulcer in this case must be considered. In view of the varied diet that included an ample amount of citrus fruit, a diagnosis of avitaminosis was not probable, although an isolated vitamin C determination in the plasma one month after operation was low. In view of this finding, it is conjectured that acetanilid might have had some effect on the absorption and level of vitamin C. This may explain the frequent ecchymosis in cases of chronic acetanilid poisoning. It has been stated that, although vitamin C deficiency in guinea pigs may cause minute hemorrhages and even ulceration of the gastrointestinal tract, study of human material shows that the gastrointestinal tract is largely spared.⁶ Uremia was considered, but esophageal ulcers usually occur in the terminal stages of a severe azotemia; this was excluded in view of the moderate increase in the nitrogenous waste in the patient's blood analysis and because of her rapid recovery in the hospital. The azotemia may be explained on the basis of acetanilid irritation superimposed on a chronic nephritis boosted by gastrointestinal bleeding that might also have served to elevate the nitrogenous blood elements.

Roentgen study of the esophagus and stomach ruled out diaphragmatic hernia as a cause. The ulcer in this case was higher than usual peptic ulcers of the esophagus that are localized to the lower third of the gullet.

In view of these facts, we feel that it is not presumptuous to consider this as possibly an esophageal ulceration secondary to acetanilid poisoning. In favor of this concept is the disappearance of the ulcer and dysphagia, as well as the cyanosis, dyspnea, and weakness on the discontinuance of the acetanilid ingestion.

SUMMARY

Chronic acetanilid poisoning is not common but should be considered whenever unexplained cyanosis is present. Its manifestations are essentially blue-gray cyanosis, dyspnea, and weakness, as well as secondary anemia and capillary fragility. A case of chronic acetanilid poisoning is reported in which an esophageal ulcer developed. It is believed that this hitherto undescribed complication might be ascribed to the chronic ingestion of acetanilid.

564 Ocean Ave (26) (Dr Wolfson)

6 Dalldorf G. The Pathology of Vitamin C Deficiency in the Vitamins A Symposium Arranged Under the Auspices of the Council on Pharmacy and Chemistry and the Council on Foods of the American Medical Association. Chicago: American Medical Association, 1939; chap 19.

SUBACUTE BACTERIAL ENDOCARDITIS TREATED WITH CHLORAMPHENICOL AND OXYTETRACYCLINE

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and

Alfredo Tola, M D, Lima, Peru

The use of penicillin has modified considerably the treatment and the end-results of subacute bacterial endocarditis. When the broad spectrum antibiotics came into use, hopes were fulfilled for reducing even further the mortality figures of this malady. Friedberg¹ considered the theoretical possibility that 95% of the cases of endocarditis could be cured. Unfortunately, this has not been the case.² There are still more than 5% of cases that must be considered therapeutic failures. On the other hand, the frequency of the disease seems to be decreasing,³ perhaps due to the widespread use of the antibiotics. One of the reasons for the failures of the new antibiotics in the treatment of subacute bacterial endocarditis seems to be the fact that these drugs are primarily bacteriostatic and not bactericidal.⁴ The following report is that of a case of subacute bacterial endocarditis cured by the use of chloramphenicol and oxytetracycline (Terramycin) in which the isolated micro-organism was *Streptococcus viridans* resistant to penicillin, streptomycin, and aureomycin.

REPORT OF A CASE

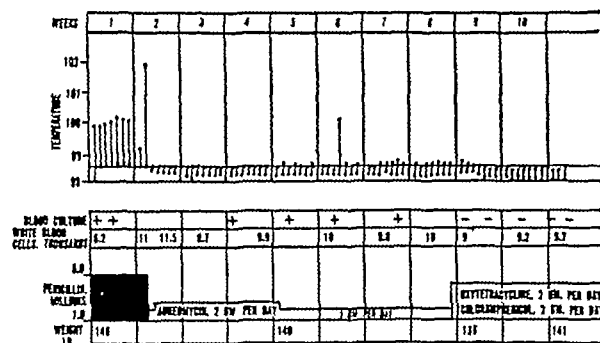
A 30 year-old engineer was admitted to the hospital on Dec 20, 1950, complaining of fever of six months duration. On July 26, 1950, after a seafood dinner, the patient had a severe attack of urticaria, nausea, and vomiting, with no fever. Three days later, he noticed malaise, anorexia, and headache, and discovered that he had fever. He consulted his physician who told him that he had an infection of his mouth and referred him to a dentist, who extracted three infected teeth. The fever did not disappear, and the patient began to notice small, tender, red spots on the hands. After four days of no change, he again consulted his physician who told him that he had an endocarditis and prescribed aureomycin. The patient took only six capsules because he felt better and the fever disappeared for five days. He then felt tired and the fever came back, he decided to come to Lima where he consulted a cardiologist. He was told that he had endocarditis and was given 300,000 units of penicillin daily for one month. The fever went away after four days of therapy, and the patient felt very well. After this treatment was completed, he went back to work in a mining camp for three weeks, when again malaise, headache, and fever developed. A physician was seen, and the patient received aureomycin, two capsules three times a day for two weeks, after which he thought that he was cured. He remained symptom-free for almost a month, but then all the symptoms reappeared. The patient came back to Lima to see another physician who prescribed penicillin, 1 million units a day, and streptomycin 1 gm daily for a period of two months. This treatment was continued only for two weeks because rash, chills, nausea, and vomiting developed. The patient then repeated the previous therapy of aureomycin, two capsules three times a day for a total of 8 gm, after which he was symptom free for a few weeks. When the fever returned, the patient decided to come to the hospital.

The past history revealed that in 1936 he was operated on for chronic sinusitis. In 1940 he had an attack of jaundice that was followed by a few joint pains for about 15 days. At that time no mention was made of any disorder of the heart by the attending physician. In 1942 the patient was examined and told for the first time that he had an aortic insufficiency, but he ignored this and had led a normal life up to the time of the present illness. Physical examination revealed a well-developed and

well nourished man in no distress. The skin showed a few petechiae of the chest, abdomen, and left hand. In the right hand, there was a tender, red nodule over the thenar eminence. The lungs were normal. The heart was enlarged 1 cm to the left of the midclavicular line. On auscultation, there was a pre-systolic rumble at the apex and a loud diastolic murmur over the aortic area. There was also a marked Corrigan's pulse. The rest of the examination was essentially normal. The blood pressure was 160/40 mm Hg, pulse 94, temperature 99.8 F, and respirations 20.

A urinalysis and serologic examinations were normal. Hemoglobin was 9.4 gm per 100 cc (photoelectric colorimeter method), red blood cell count 3,800,000, and the white blood cell count 6,200, with 80% neutrophils. The blood smear showed hypochromic red blood cells. The hematocrit was 34%. The blood urea nitrogen was 24 mg per 100 cc. Agglutinations for typhoid, paratyphoid A and B, and *Brucella* micro-organisms were negative. The blood culture taken on admission was reported, on the third day, positive for *Streptococcus viridans*.

In the hospital, the patient was first given 5 million units of penicillin a day by the intramuscular method. On the fourth day another positive blood culture was obtained. There was no change in temperature, and on the eighth day he received 5 million units of penicillin by continuous intravenous administration, to which he had a severe reaction with chills and high fever. He was then given aureomycin, 2 gm daily. With this



cillin resistant to 1 unit per cubic centimeter, streptomycin resistant to 20 μ g per cubic centimeter, aureomycin resistant to 10 μ g per cubic centimeter, chloramphenicol (Chloromycetin) sensitive to 3 μ g per cubic centimeter, and oxytetracycline sensitive to 1 μ g per cubic centimeter. The patient was then given oxytetracycline, 2 gm a day, plus chloramphenicol, 2 gm a day, for a period of three weeks, at which time he left the hospital to continue the same therapy for two more weeks. The dose was then reduced to 1 gm of oxytetracycline and 1 gm of chloramphenicol a day for two weeks. Four days after the above mentioned therapy was begun a blood culture was negative, and since then eight different blood cultures have been negative, four of which have been taken after all medication had been discontinued.

The patient has been followed regularly at the outpatient department for 14 months, and there has been no sign of recurrence. Findings of physical examination have remained about the same as at the time of admission except for the absence of petechiae. He has shown an increase in weight of 20 lb (9.1 kg). The patient is now working and living a normal life.

COMMENT

This report probably represents another case of subacute bacterial endocarditis that was due to *Str. viridans*, which became resistant to antibiotics by their improper use, thus constituting a therapeutic problem. In the present case, penicillin and aureomycin were used without avail, but the sensitivity test showed that the isolated micro-organism was sensitive only to chloramphenicol and oxytetracycline. Reports have appeared in the literature on the combined use of antibiotics and of their antagonistic and synergistic effect. These were followed by several investigations in vitro and in animals, and even in patients, indicating that there was a definite antagonism between certain groups of antibiotics. In this case, we decided to use both chloramphenicol and oxytetracycline in the hope of obtaining an additive effect of the two drugs since there was no reported antagonism. The result was a dramatic sterilization of the blood with no recurrence of the infection up to the present time.

Results in cases of subacute bacterial endocarditis treated with the new antibiotics have not been very encouraging. Because of the lack of bacteriocidal power, there is a considerable percentage of recurrences and therapeutic failures. Recently, Ahern and Kirby found a case of endocarditis due to *Str. viridans* in which penicillin and chloramphenicol had a synergistic effect in vitro. The treatment with these drugs resulted in complete recovery of the patient, while all of the previous investigations seemed to indicate that there is a definite antagonism between these two antibiotics.

Evidence is beginning to accumulate that it is impossible to give absolute rules for the use of antibiotics, and, as Jawetz points out,⁵ a fixed synergism or antagonism does not exist. The physician must depend on the laboratory tests to determine which antibiotic or combination should be used in the treatment of infection. Further research is needed to establish the exact effect of antibiotics on the metabolism of bacteria. It is possible to speculate that by using two different antibiotics, the physician is interfering with two different aspects of bacterial metabolism, and two bacteriostatic drugs can produce a bactericidal effect when used simultaneously. In the treatment of subacute bacterial endocarditis, therefore,

one should look not only for the synergistic effect among Jawetz' group 1⁶ of antibiotics, but also for the additive effect among the members of group 2, namely aureomycin, chloramphenicol, and oxytetracycline.

SUMMARY

A case of subacute bacterial endocarditis is reported in which the responsible micro-organism was *Streptococcus viridans*. Penicillin and aureomycin were used without effect. On sensitivity tests the isolated micro-organism was resistant to penicillin, aureomycin, and streptomycin, but was sensitive to chloramphenicol (Chloromycetin) and oxytetracycline (Terramycin). The patient was treated with chloramphenicol and oxytetracycline, with complete recovery resulting. Attention is called to the fact that, although some evidence exists of the antagonism between certain antibiotics, an in vitro test should always be done in the treatment of infections until a more complete knowledge of the mechanism of action of the antibiotics is known.

Apartado 2713 (Dr Garrido Lecca)

5 Jawetz, E. Antibiotic Synergism and Antagonism. Review of Experimental Evidence (Almroth Wright Lecture). *A M A Arch Int Med* 90:301-308 (Sept.) 1952.

DERMATITIS DUE TO TRIETHYLENE MELAMINE THERAPY

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and

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The administration of triethylene melamine (TEM) in various hematological disorders has led to the widespread use of this drug since it was introduced in 1951.¹ The usual side-effects have been manifested by a toxic depression of the marrow, i.e., anemia, thrombocytopenia, leukopenia, and gastrointestinal disturbances, with nausea and vomiting. We wish to present what appears to be the first recorded instance of a dermatitis due to such therapy.

REPORT OF A CASE

A 57-year-old white woman was admitted to the Albert Einstein Medical Center, Southern Division, Medical Service No. 1, because of weakness of six months' duration associated with a 50 lb (22.7 kg) weight loss. Dyspnea on exertion was recently noted. Fever and night sweats were not present. Physical examination revealed blood pressure to be 132/80 mm Hg, pulse 82, respirations 18, and temperature 98.6 F. There was no pallor, icterus, splenomegaly, purpura, or glossitis. Generalized adenopathy and marked hepatomegaly were present. Blood studies showed red blood cells 4 million, hemoglobin, photoelectric method, 12.8 gm per 100 cc (82%), reticulocytes 0.8%, platelets 280,000, white blood cells 10,900 with 67% segmented cells, 28% lymphocytes, 1% monocytes, 3% eosinophils, and 1% basophils. Urinalysis was normal. Blood sugar was 92 mg per 100 cc, and blood urea nitrogen was 11

From the Department of Research and Medicine, Albert Einstein Medical Center, Southern Division.

Dr. J. M. Rueggesser of Lederle Laboratories Division, American Cyanamid Company, furnished the triethylene melamine used in this patient.

1. Karaofsky, D. A. and others. Triethylene Melamine in the Treatment of Neoplastic Disease. *A M A Arch Int Med* 87:477-516 (April) 1951.

mg per 100 cc The total protein level was 8.5 gm per 100 cc with 5.3 gm of albumin and 3.2 gm of globulin, serum bilirubin was 1 mg per 100 cc Sulfobromophthalein (Bromsulphalein) test showed 65% retention in 45 minutes, thymol turbidity 27.5, and prothrombin activity 82% The sternal marrow was normal Megakaryocytes were present in normal numbers, and platelet production appeared adequate Granulopoiesis was normal and orderly in maturation and occurred in slightly increased numbers Erythropoiesis was normoblastic in nature and occurred in normal numbers No foreign cells were seen These findings were interpreted as showing non-specific granulocytic hyperplasia

A biopsy of an axillary node showed almost complete replacement of the normal architecture by masses of neoplastic cells These were polygonal and slightly pleomorphic, with a moderate amount of cytoplasm and large vesicular nuclei Scattered mitoses were present The cells were arranged as irregular branching cords in a delicate collagenous and reticular framework In areas, there was a denser, sheet like arrangement The pathological report diagnosis was reticulum cell sarcoma

The patient was given triethylene melamine, 3 mg a day for five days No effect on the lymph nodes or liver were observed Another course was instituted five days after the last dose of triethylene melamine Five milligrams per day was given for three days She became nauseated, vomited, and complained of anorexia on the third day following the last dose of triethylene melamine A maculopapular rash developed over the upper extremities involving the trunk, both shoulders, and extending down the arms to the wrists Marked pruritus was present Oral antihistaminic therapy and various analgesic lotions were of little benefit

The patient never had any episode similar to this previously She did not receive any other medication during this time The rash persisted for approximately one week and then gradually disappeared Blood studies made during this time were essentially unchanged from those on admission The subsequent course of the patient was downhill, and she died on her 42nd hospital day Autopsy showed extensive reticulum cell sarcoma infiltration of all organs

COMMENT

The various toxic manifestations of triethylene melamine therapy have usually involved the hematopoietic and gastrointestinal systems Various anemias, thrombocytopenias, and neutropenias have been described¹ The individual response to this drug has necessitated careful observation of the patient during such therapy The gastrointestinal complaints have usually been related to signs of toxicity, but these are not always constant

The onset of dermatitis in this patient was first noted when she had nausea, vomiting, and anorexia The rash itself was maculopapular in nature, confined primarily to the upper extremities and trunk, and was associated with a marked pruritus Lotions offered only slight relief, and no response to antihistaminic therapy was noted The rash persisted for approximately seven days before it disappeared completely without any residuals Since the patient had not received any other medication during this episode and never had any previous skin eruption, we believe that this represented a true drug reaction to triethylene melamine

SUMMARY

The first reported instance of dermatitis due to triethylene melamine therapy is presented

Fifth and Reed st (Dr Frumin)

SPECIAL ARTICLE

WILLIAM BEAUMONT, PIONEER PHYSIOLOGIST

CENTENNIAL OF HIS DEATH (1785-1853)

Frederick Stenn, M D, Chicago

For out of old fieldes
as men saith,
Cometh all this new corne
fro yere to yere,
And out of old books,
in good faith,
Cometh all this new science
that men lere

Chaucer

On June 6, 1822, at Fort Mackinac, Mich, a shotgun was accidentally discharged The resultant explosion jarred the entire scientific world and awakened echoes that have rolled down through the decades to the present A Canadian lad, aged 18, had collapsed His name was Alexis St Martin When he recovered from shock 30 minutes later, his eyes met the sympathetic countenance of the fort surgeon, William Beaumont The powder and duck shot had entered the boy's left side one yard from the muzzle of the musket Penetrating posteriorly, the eruption passed obliquely forward and inward, tearing away the integument and muscles the size of a man's hand It blew off the anterior part of the sixth rib, fractured the fifth, lacerated the lower part of the left lobe of the lung and left side of the diaphragm, and perforated the cardiac portion of the stomach Food eaten at breakfast had mingled with bloody mucus and filled the wound Beaumont was convinced that his patient could not live long During the subsequent 10 days, the trapper's course was stormy and he had a high fever and fetid slough But in four months his condition was improved

"The lad is now [September, 1824]" said Beaumont in reporting his studies in the *Medical Recorder*¹ "in perfect health and says he feels no inconvenience from the wound, except the trouble of dressing it He eats as heartily and digests as readily as he ever did, is strong and able bodied, performing any kind of labor from that of a house servant to that of chopping wood or mowing in the field He has been in my service since April, 1823, during which period he has not had a day's sickness sufficient to disqualify him for his ordinary duties He will drink a quart of water or eat a dish of soup and then by removing the compress can immediately throw it out through the wound On removing the dressings, I frequently find the stomach inverted to the size and about the shape of a half-blown damask rose, yet, he complains of no pain, it will return itself, or is easily reduced by gentle pressure When he lies upon the opposite side, I can look directly into the cavity of the stomach, observe

Read before the Medical Section of the American Library Association
Feb 5 1953 Edgewater Beach Hotel.

¹ Beaumont, W A Case of Wounded Stomach *Am. M. Recorder*
8:14 1825

its motion and almost see the process of digestion I can pour in water with a funnel, or put in food with a spoon, and draw them out again with a syphon I have frequently suspended flesh, raw and roasted, and other substances in the hole, to ascertain the length of time required to digest each, and at one time used a plug of raw beef instead of lint, to stop the orifice, and found that in less than five hours it was completely digested off, as smooth and even as if it had been cut with a knife." Beaumont had thus discovered laboratory conditions ideal for studying the physiology of the stomach through an opening three inches in circumference just below the left nipple Alexis' stomach had become both a theater and a test tube, which the great Beaumont attentively and thrillingly observed for the next eight years

In January, 1826, according to the *Medical Record*² the experiments were still in progress "On the first of August, 1825, at 12 00 o'clock noon, I introduced through the perforation between the ribs into the stomach of Alexis St. Martin, the following articles of diet, suspended by a silk string and fastened at proper distances from each other, so as to pass in without giving pain, to wit a piece of high seasoned alamode beef, a piece of raw salted lean beef, a piece of raw salted fat pork, a piece of raw lean fresh beef, a piece of boiled corned beef, a piece of stale bread, and a bunch of raw cabbage, each piece containing about two drachms The lad continued his usual domestic employments about the house

1 o'clock p m —Withdrew and examined them, found the cabbage and bread about half digested, the pieces of meat unchanged Returned them into the stomach

2 o'clock p m —Withdrew them, found the cabbage, bread, pork and boiled beef all cleanly digested and gone from the string, the other pieces of meat but very little affected Returned them into the stomach again

3 o'clock p m —Withdrew them, found the alamode partly digested and the raw beef slightly macerated on the surface, but its general texture firm and entire The fluids of the stomach smell and taste slightly rancid Lad complains of some pain and uneasiness of the breast Returned them again "

With fiery enthusiasm Beaumont performed several hundred experiments, which were often fatiguing to Alexis, who was obliged to lie in one position for long periods of time The great physiologist had proved what others thought they had discovered a century later, that the stomach juices are formed in the walls of the stomach, through a hand lens he saw the juices collecting at the orifices of the glands in the mucous membranes, the juices appearing only with the stimulation of food Foreign bodies do not incite this formation of gastric juice He distinguished gastric juice from saliva and mucus present in the stomach He found that gastric juice is acid and that its digestive property is due to something besides acid (It remained for Schwann to discover pepsin in 1835) As the quantity of food is increased the formation of gastric juice is enhanced Beaumont also studied the time of digestion of different types of foods and noted how oils and fats retard stomach emptying and how starches pass from the stomach more rapidly than

other foods He observed the contractions of the body of the stomach at the beginning and those of the pylorus at the end of digestion The manner in which hunger is relieved by the insertion of food directly into the lumen of the stomach and the way gastric secretion is suppressed or absent in states of anger, impatience, and fever, are his classical discoveries

It can be said without hesitation that these observations form the basis of modern gastric physiology Nor is it redundant to add that it is to the genius of this humble Beaumont working in the wild forests of Michigan, a thermometer, sand bath, piece of string, and simple surgical instruments his only tools, and armed alone with a liberal amount of determination and inquisitiveness that inspired such men as Walter Cannon, Ivan Pavlov, A J Carlson, Betram Sippy, Arno Luckhardt, Walter L Palmer, Sidney Portus, Lester Dragstedt, Henry Bockus, A C Ivy, Sir William Osler, Harvey Cushing, the Mayos, and an army of medical persons the world over

William Beaumont descended from a family of French Huguenots He was born in Lebanon, Conn, in 1785, the same year as that illustrious founder of medical colleges, Daniel Drake He taught school in Lake Champlain, took a preceptorship in medicine with Dr Benjamin Chandler at St Albans, Vt, and became an army surgeon in the War of 1812 These were the days when the family physician charged 25 cents for a home visit and \$3 50 for obstetric care Beaumont remained at Fort Plattsburg, N Y, for a short while, until he was transferred by his lifelong friend, the then Surgeon General, Joseph Lovell, to Fort Mackinac, Mich (called Michillimackinac) Here he married Deborah Green, a widow from Plattsburg, N Y, who was as inspiring to her husband as Grace Revere Osler was to Sir William Three days after Alexis' famous accident, Sarah, "beautiful Tasey," as Gen Robert E Lee nicknamed her, was born The other children were Lucretia, born at Fort Howard near Green Bay, Mich, and Israel, born at Fort Crawford, Prairie du Chien, Wis As for Alexis, he absconded in 1829 while the Beaumonts were visiting Plattsburg, but returned after much persuasion for the continuation of experiments at Prairie du Chien

In 1833 Beaumont published his "Experiments and Observations on the Gastric Juice and the Physiology of Digestion" in a plain tersely written volume Shortly after, its importance was properly appreciated in Ireland and Germany Even today it is replete with suggestions for research Beaumont made his permanent residence in St Louis and, after a fall on icy pavement, which resulted in an abscess on the head, died in April, 1853 He is buried at Belle Fontaine cemetery, St Louis, beside his wife, and not far from the intrepid explorer of the Far West, William Clark Not only an able scientist, he was a beloved practitioner with a wide following in St Louis, revered for his noble character by his fellow physicians, and a devoted father and husband He vigorously fought injustice and calumny, and had in addition a shrewd business ability The St Louis University Medical School was originally the Beaumont Medical School Pilgrimages have been made to his grave by the St Louis Medical Society from year to year

2 Beaumont W Further Experiments on the Case of Alexis San Martin Am M Recorder 9 94 1826

In his preface to "Experiments and Observations" appears a great quotation of medical history "I submit a body of facts which cannot be invalidated. My opinions may be doubted, denied or approved according as they conflict or agree with the opinions of each individual who may read them, but their worth will be best determined by the foundation on which they rest—the incontrovertible facts." And again, "Truth like beauty when unadorned is adorned the most." In his notebook, now at the Washington School of Medicine, St. Louis, he wrote "Of all the lessons which a young man entering upon the profession of medicine needs to learn, this is perhaps the first—that he should resist the fascination of doctrines and hypotheses till he has won the privilege of such studies by honest labor and faithful pursuit of real and useful knowledge."

Alexis St Martin lived long after the death of his master, near Montreal, in a state of poverty. He had 17 children, 4 of whom reached adulthood. He displayed his fistula in various parts of the country and had offers to exhibit it in Paris and London. When he died in 1880, Sir William Osler attempted to secure the stomach for the Army Medical Museum, but the St Martin family responded by exposing the body to putrefaction and then burying it in an eight foot deep grave.

The Ethan Allen Beaumont collection is a marvelous store of relics and letters belonging to the great surgeon and his immediate family. It was discovered in 1936 by Dr Arno Luckhardt and bequeathed to the University of Chicago, where part of it is on permanent display at Billings Library. This, added to the precious materials preserved at the Washington University School of Medicine, constitutes memorabilia that properly should be exhibited like an art treasure everywhere in the country to radiate the spirit of a great American physician.

1853 W Polk St

Prognosis in Hypertension—The character or severity of a hypertensive patient's symptoms, other of course than those which point to cardiac or renal failure, give little clue to his subsequent fate. Headache for example, has occurred as often in mild as in severe cases. Again, it might well have been expected that the transient cerebral attack ascribed to 'angiospasm' would prove to be a curtain raiser for the subsequent full-length drama of a stroke, but this has not been the case, and the incidence of such cerebral episodes was no higher among patients who subsequently had strokes than in those who did not. Since in addition neither a family history of hypertension nor the existence of a renal basis for the hypertension appears to influence prognosis unduly, assessment of a hypertensive patient must rest fundamentally upon objective findings.

Early recognition of the accelerated form of hypertensive disease is particularly desirable, since it is in this type of case that sympathectomy has most to offer, and operation performed in time may completely transform its character. Appropriate cases, however, will not be selected for sympathectomy unless the practice is adopted of submitting every hypertensive patient under the age of 50 to a systematic assessment with the object of establishing how far the disease has already progressed, for only by relating this to the age of the patient can it be decided whether or not the speed of advance has been excessive.—A W D Leishman, D.M., *Observations on Prognosis in Hypertension*, *British Medical Journal*, May 23, 1953.

CHEMICAL LABORATORY

Following is the first of several reports on cigarette cigarette smoke, and filters by the Chemical Laboratory of the American Medical Association. The work was done by the Laboratory at the request of the Advertising Committee of the American Medical Association. Many of the technical details of the work, which was carried out by Mr Robert R Stark of the laboratory staff, have been omitted in this presentation and can be obtained upon request from the Chemical Laboratory.

WALTER WOLMAN, PH D Director

A STUDY OF CIGARETTES, CIGARETTE SMOKE, AND FILTERS

1 Filter-Tip Cigarettes

Considerable interest has been expressed concerning the effectiveness of filter-tip cigarettes and the so-called denicotinizing process in reducing the amount of nicotine and tars in cigarette smoke. Because of the scarcity of published data on the subject, the Chemical Laboratory of the American Medical Association has undertaken a study of nicotine and tars in the smoke of filter cigarettes, special low-nicotine cigarettes and 'regular' cigarettes and the effectiveness of filter holders in removing nicotine and tars from cigarette smoke. This first report will deal only with the effect of the filters of the three largest selling filter tip cigarettes. They represent the three types of filter tips on the market, namely, paper, asbestos, and cotton. During the course of this investigation changes were made in the filters of each of the three brands, either to improve the filtering efficiency or to change the smoking characteristics of the cigarette. The cigarettes with the original filters are designated as A-1, B-1, and C-1, and the cigarettes with modified filters are designated as A-2, B-2, and C-2 in table 1. A 'regular' all tobacco cigarette, brand D, was also tested. These experiments are not designed to interpret such qualities of cigarettes as flavor, aroma, or smoking characteristics.

As stated by Bradford, Harlan, and Hanmer,¹ a laboratory smoking process should be sufficiently like human smoking to allow acceptance of the data collected, and it must be reproducible. Puffing the cigarette by mouth with an absorption apparatus placed between the cigarette and mouth meets the first requirement, but is not reproducible. Continuous suction applied to the cigarette as employed by Bogen,² Koperina,³ and others is far from meeting the first requirement as the intensified heat produced from the long incandescent coal changes the composition of the smoke. Constant suction interrupted at timed intervals by a stopcock or valve has been employed by Baumberger,⁴ Bogen,² Jensen and Haley,⁵ and others. This method is open to criticism because the volume of puff varies between cigarettes, depending on differences in tightness of packing. Moreover, the volume increases significantly in each cigarette as the smoking proceeds and the air resistance decreases as the cigarette becomes shorter.

1 Bradford J A, Harlan W R, and Hanmer H R. Nature of Cigarette Smoke. *Technic of Experimental Smoking*. J Indust Engin Chem 28: 836-839 1936.

2 Bogen E. The Composition of Cigarettes and Cigarette Smoke. J A M A 93: 1110-1114 (Oct 12) 1929.

3 Koperina A. Untersuchung der Stickstoffhaltigen Verbindungen des Tabakrauchs, *Biochem Ztschr* 219: 258-276 1930.

4 Baumberger J P. (a) The Carbon Monoxide Content of Tobacco Smoke and Its Absorption on Inhalation. (b) The Nicotine Content of Tobacco Smoke, (c) The Amount of Smoke Produced from Tobacco and Its Absorption in Smoking as Determined by Electrical Precipitation. J Pharmacol & Exper Therap 21: 23-57 1923.

5 Jensen C O and Haley D E. Studies on the Nicotine Content of Cigarette Smoke. J Agric Res. 51: 267-275 1935.

6 Pfyl B. Zur Bestimmung des Nicotins im Tabakrauch. II Normung des künstlichen Verrauchens der Tabakerzeugnisse. *Ztschr f Untersuch. d Lebensmitt* 66: 501-510 1933.

7 Pyrkil C. Über die Verteilung des Nicotins beim Rauchen von Zigaretten. *Chem Ztg* 58: 279, 1934.

These objections are overcome by a constant volume smoking device, such as that described by Pfyl,⁸ in which the cigarette was puffed by air displacing mercury in a tube as the mercury level was lowered by means of a leveling bulb. Pfyli,⁷ using Pfyli's apparatus to smoke oriental cigarettes to a 15 mm butt, taking 40 ml puffs every 30 seconds, found 19 to 27% of the nicotine in the mainstream smoke (smoke emerging from the puffed end of the cigarette), 37 to 47% in the sidestream (smoke rising from the burning tip), and 13 to 17% in the butts, with a total recovery of 74 to 85% of the nicotine. The remainder of the nicotine is apparently decomposed by the heat of the coal.

The cigarettes in the present tests were smoked with the automatic smoking machine described by Bradford, Harlan, and Hanmer.¹ This is a constant volume smoking device in which the mercury is replaced by water as the operating fluid. The smoke is passed through a glass tube and collected by gravity deposition in a 300 ml flask to which only two supplementary bubblers are attached. These are specially designed to reduce the back pressure to about two inches of water

length, that is from a 30 mm to a 10 mm butt, the nicotine appearing in the smoke of each cigarette increases from 13 mg to 38 mg. These variables may be eliminated by assigning fixed values to each of them. The results of the smoking experiments will depend on the values selected, but under any given set of conditions comparisons between cigarettes and comparisons in the effectiveness of filter tips are made possible.

The smoking conditions adopted by the A M A Laboratory are those of Bradford and co-workers.¹ In this process 47 mm of each cigarette is smoked (two-thirds of a "standard" 70 mm cigarette) using 35 ml puffs of two seconds' duration taken once a minute. The size of the puff is considered reasonable in view of Pfyli's observation that puffs varied among individuals from 27 to 61 ml. The time between puffs is sufficiently long to allow the cigarette to return to a free burning state and to prevent the formation of an unnaturally long and hot coal.

In addition to the variables encountered in the smoking process certain variables are inherent in the cigarettes them-

TABLE 1—Moisture, Nicotine Content, and Physical Characteristics of Four Brands of Cigarettes

Column	1	2	3	4	5	6	7	8	9
	Type of Filter	Date Sample Obtained	Average Weight of Cigarette Gm	Average Weight of Filter Tip Gm	Total Length of Cigarette Mm	Average Length of Filter Tip Mm	Average Circumference of Cigarette Mm	Moisture in Tobacco %	Nicotine in Tobacco (Moisture Free Basis) %
Brand A 1	Paper	May 1952	1 005	0 160	70 0	11 0	20 0	8.60	1 03
Brand A 2	Filter	December 1952	1 123	0 183	69.5	11.3	20.3	9 75	1 99
Brand B 1	Asbestos laminated with paper	April 1952	1 039	0 169	69 5	10 9	20 7	8.51	1.88
Brand B 2	Asbestos laminated with paper	October 1952	1 011	0 159	69 5	10 9	20 7	9.84	1.91
Brand C-1	Cotton	May, 1952	1 047	0 168	69 0	10 0	25.3	9.27	2.54
Brand C-2	Cotton	August 1952	1 033	0 173	69 0	10 0	25.3	10 77	2 44
Brand D	No filter	February 1953	1 094		70 0		26.5	10 71	2.02

TABLE 2—Analysis of Smoke from Four Brands of Cigarettes

Column	1	2	3	4	5	6	7	8	9	10
			Weight of Nicotine Found in Mainstream Smoke per Cigarette Mg			Nicotine in Tobacco Actually Smoked Which is Transferred to Mainstream Smoke %		Weight of Tar Found in Mainstream Smoke per Cigarette Mg		
	Weight of Tobacco Actually Smoked (Dry Weight) Gm	Average Volume of Mainstream Smoke per Cigarette Ml	With Filter Tip Removed	With Filter Tip	Reduction of Nicotine in Mainstream Smoke %	With Filter Tip Removed	With Filter Tip	With Filter Tip Removed	With Filter Tip	Reduction of Tar in Mainstream Smoke, %
Brand A 1	0.029	340	2.85	2.60	9	24	21	15.9	15.1	5
Brand A 2	0.060	351	2.82	2.48	14	22	19	16.8	18.9	17
Brand B 1	0.035	328	2.52	1.00	60	21	8	16.0	0.8	65
Brand B 2	0.591	350	2.49	1.47	41	22	13	16.7	9.4	41
Brand C 1	0.081	401	3.91	3.38	14	23	20	18.0	15.6	16
Brand C 2	0.055	416	4.00	2.63	27	20	18	19.6	15.1	23
Brand D	0.030	350		2.74 *			21 *		17.8 *	

* Placed in this column for comparison with full length cigarettes

The smoking machine itself consists of a constant level reservoir that supplies water to a buret equipped with a glass float. Four cigarettes are smoked simultaneously by taking a puff from each in succession. This is accomplished by motor driven valves timed by a clock motor. During the puff, suction created by the emptying buret draws air through the cigarette. The puff is terminated when the falling water level seats the glass float in a ground glass constriction at the bottom of the buret.

In smoking, a large number of variables are encountered. Six of these listed by Pfyli are rapidity of the puff, time of the puff, volume of the puff, number of puffs, duration of smoking, and the length of the butt. The effect of the length of the butt on the nicotine content of the smoke is confirmed by Jensen and Haley,⁹ who have shown that as a 70 mm cigarette is smoked from four-sevenths to six-sevenths of its

length, and the results of the experiments will depend to a certain degree upon them. Variations in type, weight, cut,⁸ and tightness of packing of the tobacco may be expected. By careful selection of cigarettes based on their weight, some of these variations can be minimized but they cannot be eliminated completely.

Five cigarettes were smoked for each single determination. The smoking of a larger number of cigarettes (up to 50) did not produce more reliable or consistent results, and the sheer volume of smoke was difficult to collect without losses. The average weight of each lot of cigarettes was determined and only those cigarettes weighing within 20 mg of this average were smoked to eliminate gross differences in amount of tobacco and tightness of packing. The cigarettes were smoked in a room maintained at 77° F (25° C) and 45% relative humidity.

The mainstream smoke was collected and the nicotine in the smoke determined by the method of Bradford, Harlow, Harlan, and Hanmer.¹⁰ The smoke was collected in a 300 ml Kjeldahl flask containing 5 ml of alcohol and 5 ml of alcoholic 0.5 N sulfuric acid. The smoke was not bubbled through the solution, but the large free space above the solution

8 Wenusch A. Influence of the Width of the Cuttings on the Passage of the Nicotine into the Main Smoke Stream. *Ztschr f. Untersuch d. Lebensmitt* 75:182-184, 1938.

9 Bradford J A, Harlow E S, Harlan W R, and Hanmer H R. Nature of Cigarette Smoke Volatile Bases and Acids. *J Indust Engin Chem* 20:45-50, 1937.

allowed the smoke to settle undisturbed by subsequent puffs. The effectiveness of gravity deposition of smoke obviated the need for a long absorption train. The two supplementary bubblers filled with glass beads and containing 5 ml of alcoholic 0.5 N acid and 5 ml of aqueous 0.5 N acid, respectively, trapped any nicotine not collected in the flask.

The smoke solution was rendered alkaline and the nicotine steam distilled into a dilute acid. The nicotine was then precipitated as the silicotungstate.

The nicotine content of the tobaccos of each of the brands of cigarettes smoked was also determined. The method used was that of the Association of Official Agricultural Chemists.¹⁰

In separate runs, tars were determined by again collecting the smoke by gravity deposition over 25 ml of 0.1 N sulfuric acid in the 300 ml Kjeldahl flask. The two bubbler tubes, loosely packed with asbestos held in place with cotton plugs, were placed between the flask and the smoking machine. Upon completion of a run, the smoke was allowed to settle 20 minutes and then the smoke tube and bubbler tubes were washed into the flask with chloroform. The material in the flask was extracted with chloroform. The chloroform was evaporated, and the tars were dried for three hours at 100° C.

The results of the experiments are given in tables 1 and 2 and in the graph. Table 1 lists the type of filters tested, the physical characteristics of the cigarettes and filters, and the percentage of moisture and nicotine found in the tobacco. Table 2 and the graph give the results obtained from the smoking of the cigarettes. It should be noted that the weights of nicotine and tars found in cigarettes and their smoke will vary in different lots of the same brand of tobacco. The amount of nicotine in the smoke is a function of the amount of nicotine originally present in the tobacco. The nicotine content of tobacco is subject to great variations, depending on the position of the leaf on the plant, weather conditions during the growing season, type of tobacco, region of growth, and cultural practices. The nicotine content of different brands of cigarettes will vary, depending on the blend of tobaccos, and cigarettes of the same brand may vary considerably if the manufacturer's controls are poor or nonexistent.

In table 2, column 2, the figures are obtained by multiplying the average number of puffs required to smoke the cigarette to the 47 mm mark by the volume of each puff (35 ml) and represent the average volume of smoke sucked into the absorption train. This mainstream smoke represents the smoke that presumably would reach the smoker's mouth. Columns 3 and 4 of table 2 show the weight of nicotine in this smoke with the filters removed and intact, respectively. The percentage reduction in nicotine in the mainstream effected by the filter is listed in column 5 and is based on the difference between columns 3 and 4.

In columns 8 and 9 of table 2, the weights of the tars appearing in the mainstream smoke per cigarette are given without and with the filters attached, respectively. Column 10 lists the reduction in tars in the mainstream effected by the filter. These figures are based on the difference between columns 8 and 9 and are in close agreement with the figures in column 5.

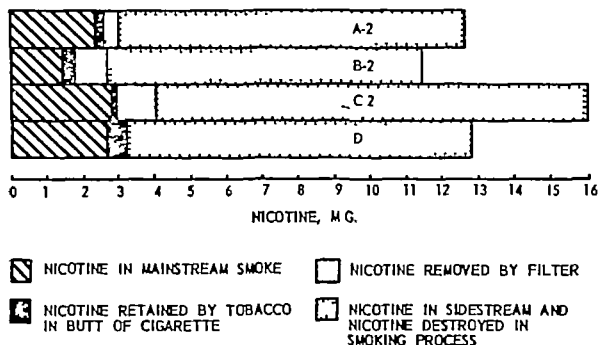
The figures on reduction in nicotine and tars in columns 5 and 10 favor the filters and are deceptive because the figures for nicotine and tars in the mainstream smoke listed in columns 3 and 8 were obtained from the short cigarettes resulting from the removal of the filters. Tobacco itself is a rather good filter, and, if the filter tips were to be replaced by an equal length of tobacco the mainstream smoke from the resulting all tobacco cigarettes of brands A, B, and C would contain less nicotine and tars than are listed for the shortened cigarettes in column 5 and 10, because the tobacco replacing the filter-tips would remove a certain amount of these substances.

This laboratory has found that, if the paper filter of brand A-1 is replaced by 11 mm of tobacco, the additional tobacco will remove 8% of the nicotine and tars from the mainstream smoke. This is comparable with the 9% reduction in nicotine and 5% reduction in tars effected by the paper filter of brand A-1. Similar reductions might be expected to occur in columns

5 and 10, table 2, for brands B and C if the removed filter-tips were replaced by equal lengths of tobacco.

In the graph, the distribution of the nicotine from the smoked portion of the cigarette is shown for the brand 2 series of filter-tips and the all tobacco cigarette brand D. Comparisons between brand D and other members of the series are difficult to make when the initial nicotine contents of the smoked portions of the cigarettes are different as shown by differences in the total lengths of the bars. A comparison between brand D and brand A-2 can be made because the initial nicotine contents of the smoked portions of the two cigarettes are very nearly equal. It can readily be seen from the graph that the amount of nicotine in the mainstream smoke from the two cigarettes is almost identical. It is also apparent that the amount of nicotine filtered by the tobacco of the butt of cigarette brand D is almost as great as the amount of nicotine filtered by the tobacco remaining in the butt plus the filter of brand A-2. It is interesting to note from the graph that although the total amount of nicotine trapped by the filter of brand C-2 is greater than that trapped by the filter of brand B-2, the percentage efficiency is lower (column 5 of table 2). This is a direct result of the fact that the tobacco of brand C-2 has a larger nicotine content in the portion of the cigarette smoked, and consequently the concentration of nicotine in the smoke passing through the C-2 filter is greater than that passing through the B-2 filter.

Since the amount of nicotine that reaches the smoker's mouth is of primary importance, the practical ineffectiveness



Distribution of nicotine from smoked portion of four brands of cigarettes

of the filter of brand C-2 is demonstrated by the length of the bar that measures the nicotine in the mainstream smoke. Brand C-2 contains more nicotine in this portion of the smoke than any other brand shown in the graph. Brand C-1, an earlier product of the same brand name, showed an even larger amount of nicotine in the mainstream smoke.

Columns 6 and 7 table 2, show the percentage, expressed as the nearest whole number of the total nicotine in the smoked portion of the tobacco that is transferred to the mainstream smoke without and with the filters. In column 6 the figures are again shown for the shorter cigarette resulting from the removal of the filter. To compensate for the shorter cigarette, corrections may again be used here that are based on the substitution of a length of tobacco equal to the length of the filter. They are proportional to the corrections that may be applied to columns 5 and 10 and would reduce the figures in column 6 by about 2%.

The figures in column 6 show that the proportion of nicotine transferred from the smoked portion of the cigarette to the mainstream smoke is surprisingly constant. If a 2% correction were applied to compensate for the shorter cigarettes, the values would range from 19 to 23%. These corrected figures would be in close agreement with the work of Bradford and co-workers.⁹ The values in column 7 for brands A-1, A-2, C-1, C-2, and D agree closely with one another and with the corrected values for the cigarettes without filters.

These values and the bars of the graph indicate that the filters are responsible for removing very little of the total nicotine in the smoked portion of the cigarette. The bulk of this nicotine, about 75% in the case of "regular" cigarettes, is lost in the sidestream or is destroyed by the burning coal.

On the basis of results obtained in the smoking experiments, it can be seen that the over-all effectiveness of the filters of brands A and C is not significant. Indeed, it can be seen from column 4 of table 2 and from the graph that the nicotine content of the mainstream smoke of brand C is exceptionally high—higher than that of "regular" cigarettes. The filter of brand B-1 is the most effective in removing nicotine and tars from the mainstream smoke. However, the sample of later manufacture, brand B 2, is much less effective, as the filter is more loosely packed, apparently in an effort to improve the smoking qualities.

In all cases the fraction of nicotine removed by the filter from the smoked portion of the cigarette is small. Even in a "regular" cigarette with no filter tip only 21% of the total nicotine reaches the smoker in the mainstream smoke. In recent advertisements calculations have been contrived to advance claims for very low percentages of nicotine in the mainstream smoke. Widely divergent values can be obtained from the same analytical data choosing different bases for the calculations. For example, an extremely low value can be obtained by basing the calculation on the total weight of the cigarette. Using this stratagem in calculating, the figure 0.25% nicotine in the smoke of the "regular" cigarette, brand D, is obtained. Thus an apparently low figure is obtained from a normal nicotine content.

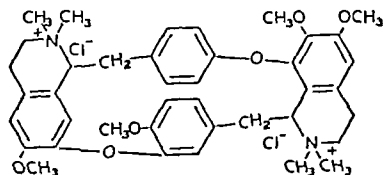
COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R T STORMONT, M D, Secretary

Dimethyl-Tubocurarine Chloride—*Mecostrin Chloride* (Squibb)— $C_{16}H_{18}ClNO_4$ —M W 723.71—O Methyl *d*-tubocurarine chloride—Dimethyl ether of *d* tubocurarine chloride—The structural formula of dimethyl tubocurarine chloride may be represented as follows:



Actions and Uses—Dimethyl-tubocurarine chloride has the same actions and uses as dimethyl tubocurarine iodide and tubocurarine chloride except that the efficacy of the methylated derivatives in the treatment of spastic diseases has not yet been determined (See the monographs on dimethyl tubocurarine iodide and tubocurarine chloride.)

Dosage—Dimethyl tubocurarine chloride has approximately the same ratio of potency as dimethyl tubocurarine iodide when compared with tubocurarine chloride, but on the basis of the difference in the molecular weights of the two salts, 0.8 mg. of dimethyl tubocurarine chloride provides a dose equivalent to 1 mg. of the iodide. Like the iodide, dimethyl-tubocurarine chloride is administered only by slow intravenous

injection over a period of 30 to 60 seconds. For muscle relaxation in surgery, the average initial dose for adults is 2 to 3 mg. If needed, 1 to 1.5 mg. can be added in 3 to 5 minutes. After 45 minutes an additional dose of 1.5 to 2 mg. may be administered. With ether anesthesia the dose of dimethyl tubocurarine chloride should be about one third that used with other anesthetic agents. For shock therapy and manipulative therapy the average dose is calculated on the basis of 0.025 mg. per pound of body weight, using 1 mg. less than this amount for the initial dose in adults. The safe upper limit of dosage is 0.037 mg. per pound of body weight. As a diagnostic agent in myasthenia gravis, the dose is one fortieth to one tenth of the adult shock therapy dose (i.e., 0.0006 to 0.0025 mg. per pound of body weight), administered intravenously. The test should always be terminated within 2 or 3 minutes by the intravenous injection of 1.5 mg. of neostigmine methyl sulfate with 0.6 mg. of atropine sulfate. The same precautions and contraindications should be observed as with other purified derivatives of curare.

Tests and Standards—

Physical Properties Dimethyl tubocurarine chloride is a white odorless, crystalline powder. It decomposes with evolution of gas when heated to about 236°. It is soluble in water and diluted sodium hydroxide, sparingly soluble in alcohol and diluted hydrochloric acid, very slightly soluble in chloroform and practically insoluble in benzene and ether.

Identity Tests Prepare a solution of about 50 mg. of dimethyl-tubocurarine chloride in 30 ml. of water. To 5 ml. of the solution add several drops of nitric acid and 1 ml. of silver nitrate T.S. a curdy white precipitate forms that is soluble in ammonia T.S. (presence of chloride). The solution also responds to the second, third and fourth identity tests in the monograph for dimethyl tubocurarine iodide.

The specific rotation $[\alpha]_{25}^{20}$ of a solution of 0.25 gm. of dimethyl-tubocurarine chloride in 50 ml. of water is between 185 and 195.

A 0.005% solution of dimethyl tubocurarine chloride prepared as directed in the assay in the monograph for dimethyl-tubocurarine iodide, exhibits an absorption maximum at about 2800 Å [specific absorbancy $E(1\% \text{ 1 cm.})$ about 89].

Purity Tests Dry about 0.3 gm. of dimethyl-tubocurarine chloride accurately weighed in a vacuum at 60° over phosphorus pentoxide for 4 hours. The loss in weight is not more than 14.0%.

Assay (Dimethyl tubocurarine Chloride) Transfer 25 mg. of dimethyl tubocurarine chloride accurately weighed to a 500 ml. volumetric flask and proceed as directed in the spectrophotometric assay in the monograph for dimethyl tubocurarine iodide starting with ' ' add 10 drops of hydrochloric acid.

The concentration of the final solution (0.005%) in mg./ml. = optical density at 2800 Å — 8.9. The amount of dimethyl tubocurarine chloride present is not less than 98.0 nor more than 102.0%.

(Nitrogen) Transfer about 0.2 gm. of dimethyl-tubocurarine chloride accurately weighed to a semimicro Kjeldahl flask and proceed as directed in the assay for nitrogen in the monograph for dimethyl-tubocurarine iodide starting with ' ' digest it with 7 ml. of sulfuric acid. The amount of nitrogen present is not less than 3.60 nor more than 3.90% equivalent to not less than 93.0 nor more than 100.8% of dimethyl tubocurarine chloride.

Dosage Forms of Dimethyl tubocurarine Chloride

SOLUTION Identity Tests The solution responds to the identity tests in the monograph for dimethyl tubocurarine iodide.

Assay (Dimethyl tubocurarine Chloride) Transfer to a 50 ml. beaker an exactly measured volume of solution equivalent to about 5 mg. of dimethyl-tubocurarine chloride and proceed as directed in the assay for dimethyl-tubocurarine iodide solution starting with ' ' and carefully evaporate it to dryness. The concentration of the final solution (0.005%) in mg./ml. = optical density at 2800 Å — 8.9. The amount of dimethyl tubocurarine chloride present is not less than 95.0 nor more than 105.0% of the labeled amount.

E R Squibb & Sons, Division of Matheson Chemical Corporation, New York.

Solution Mecostrin Chloride 10 cc vials. An isotonic salt solution containing 1 mg. of dimethyl tubocurarine chloride in each cubic centimeter. Preserved with 0.9% benzyl alcohol.

Aluminum Hydroxide Gel U.S.P. (See New and Nonofficial Remedies 1952, p. 306).

Physicians' Drug & Supply Company, Philadelphia.

Tablets Dried Aluminum Hydroxide Gel 0.3 and 0.65 gm.

Cortisone Acetate (See New and Nonofficial Remedies 1952, p. 322).

Schering Corporation, Bloomfield, N. J.

Tablets Cortogen Acetate 5 mg.

Dihydrostreptomycin U.S.P. (See New and Nonofficial Remedies 1952, p 130)

The Upjohn Company, Kalamazoo, Mich

Dihydrostreptomycin Sulfate 5 cc and 20 cc vials Dihydrostreptomycin powder equivalent in activity to 1 gm and 5 gm, respectively, of dihydrostreptomycin base

Solution Dihydrostreptomycin Sulfate 2 cc and 10 cc vials A solution containing dihydrostreptomycin sulfate equivalent in activity to 0.5 gm of dihydrostreptomycin base in each cubic centimeter Preserved with 0.25% phenol

Diphtheria and Tetanus Toxoids with Pertussis Vaccine Combined, Alum Precipitated (See New and Nonofficial Remedies 1952, p 398)

U S Standard Products Company, Woodworth, Wis

Aquagen Diphtheria and Tetanus Toxoids and Pertussis Vaccine Alum Precipitated 1.5 cc (one three-dose immunization) and 7.5 cc (five three-dose immunizations) vials Each cubic centimeter contains 30,000 million H pertussis organisms Preserved with thimerosal 1:10,000

Diphtheria and Tetanus Toxoids with Pertussis Vaccine, Combined (See New and Nonofficial Remedies 1952, p 397)

U S Standard Products Company, Woodworth, Wis

Diphtheria and Tetanus Toxoids with Pertussis Vaccine, Combined 1.5 cc (one 3-dose immunization), 7.5 cc (five 3-dose immunizations), and 22.5 cc (fifteen 3-dose immunizations) vials Each cubic centimeter contains 60,000 million H pertussis organisms Preserved with thimerosal 1:10,000

Diphtheria Toxoid, Alum Precipitated U.S.P. (See New and Nonofficial Remedies 1952, p 384)

U S Standard Products Company, Woodworth, Wis

Aquagen Diphtheria Toxoid (Alum Precipitated) 5 cc (five 2-dose 0.5 cc immunizations) and 10 cc (five 2-dose 1 cc immunizations) vials Preserved with thimerosal 1:10,000

Heparin Sodium U.S.P. (See New and Nonofficial Remedies 1952, p 208)

Walker Laboratories, Inc., Mount Vernon, N Y

Solution Heparin Sodium 10 cc vials A solution containing 1,000 U.S.P. units (approximately 10 mg) of heparin sodium in each cubic centimeter Preserved with 0.5% chlorobutanol

Solution Heparin Sodium 10 cc vials A solution containing 5,000 U.S.P. units (approximately 50 mg) of heparin sodium in each cubic centimeter Preserved with 0.45% phenol

Isoniazid (See THE JOURNAL, Feb 28, 1953, p 740)

The Parry Corporation, New York

Tablets Isoniazid 50 and 100 mg

Mephensin (See New and Nonofficial Remedies 1952, p 432)

The Bowman Bros Drug Company, Canton, Ohio

Tablets Mephensin 0.5 gm

S J Tutag & Company, Detroit

Elixir Mephison 118 cc., 473 cc., and 3.78 liter bottles An 18% alcohol, 30% propylene glycol solution containing 0.1 gm of mephensin in each cubic centimeter

Tablets Mephison 0.5 gm

Mercumatilin Sodium (See New and Nonofficial Remedies 1952, p 290)

Endo Products, Inc., Richmond Hill, N Y

Solution Cumertilin Sodium 10 cc vials An aqueous solution containing 0.132 gm of mercumatilin sodium (equivalent to 39 mg of mercury) and 11 mg of excess theophylline in each cubic centimeter Preserved with 0.18% methylparaben and 0.02% propylparaben

Penicillin for Inhalation (See New and Nonofficial Remedies 1952, p 121)

Schenley Laboratories Inc New York

Soluble Tablets Potassium Penicillin G 100,000 units

Penicillin for Oral or Sublingual Administration (See New and Nonofficial Remedies 1952, p 122)

Eli Lilly & Company, Indianapolis

Tablets Potassium Penicillin G (Buffered) 500,000 and 1,000,000 units Buffered with calcium carbonate

Premo Pharmaceutical Laboratories, Inc., South Hackensack, N J

Nebutabs Potassium Penicillin G 200,000 and 250,000 units

Progesterone U.S.P. (See New and Nonofficial Remedies 1952, p 348)

The Vitamine Company, Inc., New York

Solution Progesterone in Oil 1 cc ampuls A solution in sesame oil containing 5 mg or 10 mg of progesterone in each cubic centimeter 10 cc vials A solution in sesame oil containing 10 mg of progesterone in each cubic centimeter Both sizes preserved with 0.5% chlorobutanol

Solution Progesterone in Oil with Benzyl Alcohol 3% 10 cc vials A solution in sesame oil containing 25 mg. of progesterone in each cubic centimeter Preserved with 0.5% chlorobutanol

Pyridoxine Hydrochloride (See New and Nonofficial Remedies 1952, p 462)

The Vitamine Company, Inc., New York

Solution Pyridoxine Hydrochloride 10 cc vials A solution containing 50 mg of pyridoxine hydrochloride in each cubic centimeter Preserved with 0.5% chlorobutanol

Sulfisoxazole Diethanolamine (See THE JOURNAL, Feb 28, 1953 p 740)

Hoffmann-LaRoche, Inc., Nutley N J

Ophthalmic Ointment Gantrisin Diethanolamine 3.54 gm tubes An ointment containing 40 mg of sulfisoxazole in the form of the diethanolamine salt in each gram Preserved with 0.002% phenylmercuric nitrate

Testosterone Propionate-U.S.P. (See New and Nonofficial Remedies 1952 p 368)

The Vitamine Company, Inc., New York

Solution Testosterone Propionate in Oil 1 cc ampuls and 10 cc vials A solution in sesame oil containing 10 or 25 mg of testosterone in each cubic centimeter Preserved with 0.1% propylparaben

Solution Testosterone Propionate in Oil with Benzyl Alcohol 4% 1 cc ampuls and 10 cc vials A solution in sesame oil containing 50 mg of testosterone in each cubic centimeter

Tetanus Toxoid U.S.P. (See New and Nonofficial Remedies 1952, p 386)

U S Standard Products Company, Woodworth, Wis

Aquagen Tetanus Toxoid 1.5 cc (one 3-dose immunization), 7.5 cc (five 3-dose immunizations), and 22.5 cc (fifteen 3-dose immunizations) vials Preserved with thimerosal 1:10,000

Tetanus Toxoid, Alum Precipitated U.S.P. (See New and Nonofficial Remedies 1952, p 386)

U S Standard Products Company, Woodworth, Wis

Aquagen Tetanus Toxoid (Alum Precipitated) 1 cc (one 2-dose immunization) and 5 cc (five 2-dose immunizations) vials Preserved with thimerosal 1:10,000

Vitamin B₁-U.S.P. (See New and Nonofficial Remedies 1952, p 470)

William H Rorer, Inc., Philadelphia

Solution Crystalline Vitamin B₁ 1 cc ampuls A solution containing 30 µg of vitamin B₁ in each cubic centimeter Buffered with sodium acetate and acetic acid

Solution Crystalline Vitamin B₁ with Benzyl Alcohol 1.5% 10 cc vials A solution containing 30 or 50 µg of vitamin B₁ in each cubic centimeter Buffered with sodium acetate and acetic acid

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INCIDENCE OF TUBERCULOSIS AMONG AMERICAN MEDICAL STUDENTS

For the past two decades various investigators have commented on the relative frequency with which tuberculosis occurs among medical students. In 1931 Hetherington and his associates¹ reported that medical students are especially subject to tuberculous infection, while in 1937 Dauer² asserted that the incidence of tuberculosis is greater among medical students than among persons of the same age and of a similar economic and social status. As a result of the Prophit survey, Daniels and his associates³ disclosed a tuberculosis rate three times greater among medical students than among comparable control groups.

Recently, with the assistance of the Association of American Medical Colleges, Abruzzi and Hummel⁴ made an inquiry into the incidence of tuberculosis among American medical students. Their survey covered approximately 42,000 students from 62 medical schools during the period between 1940 and 1950. The study revealed 557 cases of clinical tuberculosis, a case rate of 3.34 per 1,000 per year, as compared with similar groups of young adults in the general population, who had a case rate of 1.4 per 1,000 per year. Clinically active tuberculosis was defined as that which is proved bacteriologically or that which evidences a lesion on roentgenographic study not apparent on earlier films and is accompanied by concomitant symptoms, or both. All affected medical students fulfilled one or both of these criteria.

According to Abruzzi and Hummel, the factors that have been implicated as probably contributing to the high incidence of tuberculosis among students of medicine and nursing include deficiencies in aseptic technique and sanitary methods because of unconcern or ignorance, repeated contact with tuberculous patients, handling of cadavers of tuberculous patients, susceptibility and weakened natural resistance, and contact with undiagnosed

cases of tuberculosis. The authors were left with one inescapable conclusion, namely, that there is considerable exposure to tuberculosis among students of medicine and nursing and that liability to the development of clinical tuberculosis is much greater among those never before infected with the tubercle bacillus and then infected during medical training for the first time than among those who had been infected previously.

In addition to the use of sound, established procedures to help reduce the degree of exposure to tuberculosis, Ambruzzi and Hummel, while emphasizing that BCG should not be offered as a substitute for control measures that have already proved effective against tuberculosis in the United States, nevertheless are convinced of the harmlessness of BCG and believe that it offers at least partial protection, particularly to susceptible negative reactors subject to heavy tuberculous infection. Other limitations of BCG, it was pointed out, include the difficulty of knowing who can benefit from vaccination and who can be vaccinated without excessive adverse reactions. In general, more information is required as to what constitutes a successful vaccination and how long the acquired sensitivity may last. Of approximately 4,400 students vaccinated with BCG in the medical schools that employ it routinely as part of their tuberculosis control program, the survey showed that only 3 students contracted tuberculosis, none of whom became positive reactors, and that not one truly vaccinated student in the group of 4,400 with more than two to six years of exposure had contracted clinical tuberculosis.

The fact that adequate control programs, with or without the use of BCG, can prevent spread of tuberculosis among medical students has been amply demonstrated in recent years by a number of American medical schools. Before World War II, at least two or three medical students at the University of Illinois contracted clinical tuberculosis each year, during the past five years, a comprehensive control program, including the use of BCG, reduced the incidence to two cases. While there were seven cases of tuberculosis among students at Loyola University School of Medicine during the period 1940-1943, since the establishment of a student health service and a tuberculosis prevention program in 1943 there have been only two cases. The University of Kansas has had no cases of tuberculosis among its students since 1940, presumably in part because of a comprehensive control program. Ever since the University of Texas instituted a control program three years ago, only one case of tuberculosis was discovered among medical students, whereas five to seven cases annually occurred prior to that time.

Utilizing comprehensive control programs, Tufts College Medical School had no cases of clinical tuberculosis in the past five years, and the University of Rochester, which had a small number of cases, reduced the incidence to zero. At Tulane University 20 cases of clinical tuberculosis were discovered between 1940 and 1946, with but one case being revealed since then, an improvement traceable to control intensification. Nine cases of tuberculosis occurred among medical students at Washington

1 Hetherington H W, McPhedran F M, Landis H R M and Opie E L. Tuberculosis in Medical and College Students. *Arch Int Med* 48: 734, 1931.

2 Dauer C C. Tuberculosis in Medical Students. *Internat M Digest* 30: 56, 1937.

3 Daniels M, Ridehalgh F, Springett V H and Hall I M. Tuberculosis in Young Adults. Report of the Prophit Tuberculosis Survey 1935-1944. London: H K Lewis, 1948, pp 1-227.

4 Abruzzi W A Jr and Hummel R J. Tuberculosis Incidence Among American Medical Students: Prevention and Control and the Use of BCG. *New England J Med* 248: 722, 1953.

University of St. Louis between 1940 and 1947 and none since 1947, when a control program was intensified and BCG vaccination added. At the University of Pennsylvania 36 cases of tuberculosis were found between 1940 and 1948, but none have occurred since 1948, when prevention, including BCG vaccination, was emphasized. Eighteen cases of tuberculosis occurred at Woman's Medical College in Philadelphia between 1940 and 1942 and only three cases between 1943 and 1950, a period when a control program, which later included BCG, was introduced. After the institution of effective control programs, the University of Cincinnati College of Medicine has had no cases since 1947, while Cornell has had but one case since 1946. Finally, at the University of Minnesota, where the results have been most gratifying, there has been only one case in the past seven years, as compared to an annual tuberculosis incidence of 4% to 10% of the medical student body prior to the establishment of a comprehensive control program.

FATAL BICYCLE ACCIDENTS IN THE UNITED STATES

Bicycle accidents in the United States annually take about 600 lives, two-thirds of the fatal injuries occurring in the period from May to October, when the weather is most favorable for outdoor recreational activities. According to a recent study,¹ 9 out of 10 deaths occur among males, with boys 5 to 19 years of age constituting 70% of all the victims in both sexes. Interestingly enough, the concentration of deaths from bicycle accidents among females aged 10 to 14 years was found to be greater than among males, this indicates that young girls, like young boys, are frequently too venturesome. There was, however, an appreciable number of deaths even among older cyclists.

A number of factors contribute to the prevalence of bicycle accidents. Collision with a motor vehicle is by far the greatest hazard in bicycling, being responsible for at least four-fifths of fatalities. Other hazardous practices of bicyclists include "cutting in" in front of a motor vehicle, carrying an extra passenger on a bicycle, crossing from one lane to another without signaling, failure to exercise caution at street intersections, curves, or when coming out of a driveway or alley, riding on the wrong side of the street or too far from the curb, riding around or between automobiles, and riding bicycles in poor mechanical condition. Accidents other than those arising from collisions with motor vehicles were due mainly to falls from bicycles. About 2% of fatalities were among pedestrians run into by cyclists.

These facts make it clearly evident that most bicycle accidents can be prevented. Inasmuch as young children and teen-agers constitute the focal point of the problem, parents and school authorities have a twofold obligation—to make children aware of the hazards accompanying bicycling and to teach them safe habits of riding. Parental efforts should supplement those already exerted by the National Safety Council, the Bicycle Institute of America,

and other organizations concerned with reducing accidents. Finally, it is also important that drivers of automobiles and trucks be constantly made aware of the need for looking out for bicycles on streets and highways frequented by bicyclists.

INDUSTRIAL DERMATOLOGY

During the last quarter century the economic and social progress of the wage earning group of our national population has been highlighted by striking developments in improved medical care and by accumulated knowledge concerning the prevention, control, and management of the diseases peculiar to industry. The field of dermatology has participated in this progress.

At the present time approximately 60 million of our adult population comprise the working force. The heavy industries employ 25 million, of whom 15 million are in manufacturing and 21 million in service industries. It has been established that at any time a factory inspection is made in the United States an average of 1% of the workers can be found to have occupational dermatoses. These disorders comprise two-thirds of the occupational diseases for which compensation is paid, and yet the majority of them are not disabling and are therefore not recorded as compensation cases. The importance of these occupational dermatoses is evident.

An early field of investigation of industrial disease was in dermatology. The United States Public Health Service has maintained activity in dermatoses investigations for many years. In 1935 the Section on Dermatology and Syphilology of the American Medical Association set up a committee for the purpose of studying this problem and for accumulating, advancing, and disseminating information through educational channels and by other means. This project was accelerated and facilitated by the cooperation of a similar committee of the American Dermatological Association and the Section on Dermatoses Investigations of the Academy of Dermatology and Syphilology, by programs held at national and sectional meetings and later by symposiums conducted at annual meetings of the Academy of Dermatology and Syphilology.

Through recent action of the national dermatological organizations, the committees and groups concerned with this project have reorganized their functioning. A compact committee representative of the national dermatological groups has now been appointed to operate under the immediate direction of the American Medical Association's Council on Industrial Health and in close liaison with the previously designated organizations and all other groups interested in this field. It may be anticipated that the progress already made in advancing knowledge in the diagnosis and management of occupationally acquired skin diseases will be accelerated by this close affiliation with the home office of the American Medical Association.

¹ The Hazards in Bicycling. *Statist. Bull. Metrop. Life Insur. Co.*, 34:5 (April) 1953.

ORGANIZATION SECTION

FEDERAL MEDICAL LEGISLATION

Vocational Rehabilitation for the Blind

Congressman Rhodes (R, Ariz.) in H R 5562, joined by Congressman Williams (D, Miss) in H R 5610, has introduced a bill to amend the Vocational Rehabilitation Act at the request of the National Rehabilitation Association. This bill would include several important additions to this federal law, for example (1) it defines blindness for the first time, providing for certification by physicians skilled in diseases of the eye, (2) it permits the use of federal funds for the purchase of stocks of goods for business ventures for disabled persons generally, (3) federal funds could be expended to pay for the supervision of work of the disabled and to finance for their benefit training, demonstrations, research, and fellowships, and marketing arrangements would be facilitated, (4) it would allow federal payments to states whose programs of hospitalization exceed the 90 day limits, and (5) it authorizes those state agencies for the blind that operate separately from other state rehabilitation agencies to deal directly with the federal Office of Vocational Rehabilitation. The bill was referred to the Committee on Education and Labor.

Additional Vocational Rehabilitation Legislation

Congressman Rhodes (R, Ariz.) and Congressman Williams (D, Miss) have introduced H R 5563 and H R 5609, respectively, at the request of the National Rehabilitation Association. These bills would further amend the National Rehabilitation Act to authorize federal grants to the states for the establishment of rehabilitation centers to provide physical and occupational therapy, vocational or exploratory vocational training, testing, fitting, or training in use of prosthetic devices, and adjustment training and evaluation or control of special disabilities. The bills would also allow the use of federal funds to establish workshops in which remunerative employment could be provided to severely disabled persons who cannot be absorbed in the competitive labor market under the direction of a public or private nonprofit agency. In each case the federal share of the cost would range from one third to two-thirds, depending on the per capita wealth of the state. This bill was referred to Education and Labor Committee.

Establishing Service Connection for Tuberculosis

Congressman Radwan (R, N Y) has introduced H R 5636, which would establish a presumption of service connection for all types of tuberculosis becoming apparent within three years after discharge. Under the present law, a three years' presumption exists for pulmonary tuberculosis only, other types must become apparent in a shorter period of time. This was referred to the Veterans Affairs Committee. The bill was favorably reported without amendment the day after its introduction.

Factory Inspection by Food and Drug Agents

Chairman Wolverton (R, N J) of the Interstate and Foreign Commerce Committee has introduced H R 5740, written after hearings on all pending similar bills. This bill would permit inspection of factories, warehouses, and establishments in which food, drugs, devices, or cosmetics are manufactured, processed, packed, or held for interstate shipment after presentation of "appropriate credentials and a written notice." The inspecting agent is required to furnish the inspected establishment a copy of his findings and a receipt for any samples taken from the premises. The results of any analysis made of samples must later be furnished the establishment. This was referred to the Interstate and Foreign Commerce Committee.

The summary of federal legislation was prepared by the Washington Office of the American Medical Association and the summary of state legislation by the Bureau of Legal Medicine and Legislation.

STATE MEDICAL LEGISLATION

New Hampshire

Bills Enacted.—H J R 49 was approved May 26 1953. It provides for the creation of an interim commission to study and report on all phases of nursing with particular reference to the possibility of broadening the concept of nursing education. H 140 has become ch 126 of the laws of 1953. It provides that in civil action in which paternity is a relevant fact a court may order the mother, child and alleged father to submit to blood tests. If any party refuses to submit to such tests, the court may resolve the question of paternity against such party or enforce its order if the rights of others and the interests of justice so require. The law also provides that if the court finds that the conclusion of all the experts as disclosed upon the evidence based upon the blood tests, is that the alleged father is not the father of the child the question of paternity shall be resolved accordingly. If the experts disagree in their findings or conclusions the question shall be submitted upon all the evidence. If the experts conclude that the blood tests show the possibility of the alleged father's paternity admission of this evidence is within the discretion of the court depending upon the infrequency of the blood type. Finally the law permits the use of such tests in criminal cases under certain limitations. S 41 has become ch 172 of the laws of 1953. It amends the law relating to chiropractic by authorizing the revocation of a chiropractic license of any licensee who has been convicted of a felony. Previously the revocation was on the basis of conviction of a crime punishable by imprisonment in the state prison. S 67 has become ch 207 of the laws of 1953. In relation to voluntary patients under the control of the division on alcoholism the law provides that all records pertaining to voluntary patients shall be kept confidential and undivulged except that the executive director may release such records to hospitals, institutions and physicians whenever in his discretion such information may assist in further treatment of the voluntary patient.

Texas

Bills Enacted.—H 35 was approved May 19 1953. It amends the workmen's compensation act so as to permit injured employees to be treated by chiropractors and to permit such chiropractors to recover fees for the services which they perform. H 513 was approved May 28 1953. It makes it unlawful for any person to habitually use narcotic drugs, to be addicted to the use of narcotic drugs or to be under the influence of narcotic drugs provided that nothing in the act shall be applicable to a person who has a medical need for narcotic drugs and who obtains the narcotic drugs required for such medical need in accordance with the laws of the state of Texas and of the United States. H 535 was approved June 5 1953. It amends the law by exempting from jury service all physicians engaged in actual practice. H 609 was approved June 9 1953. It provides for the licensing regulation, and inspection of convalescent homes, nursing homes and related institutions.

Vermont

Bills Enacted.—H 311, was approved June 3 1953. It provides for the granting of nursing scholarships to persons enrolled or desiring to enroll in a school of nursing in the state for a three year course. H 321 was approved April 22 1953. It amends the law relating to the inspection of certain institutions by adding boarding homes to the list of institutions required to be inspected and licensed. H 332 was approved May 20 1953. It amends the law relating to the licensing of hospitals by exempting from the licensing provisions hospitals conducted, maintained or operated by the United States government, the state of Vermont or a duly authorized agency thereof. H 422 was approved May 27 1953. It amends the law relating to narcotic drugs by adding to the definition of such drug any other drugs to which the federal narcotic laws may now apply and any drug found by the commission after reasonable notice and opportunity for hearing to have an addiction forming or addiction-sustaining liability similar to morphine or cocaine.

MEDICAL ARTICLES IN LAY JOURNALS

The July issues of two national magazines contain articles that give the general public sound, accurately reported solutions to two often asked questions regarding medical care. "How Much Should Your Doctor Charge?" by Howard Whitman appears in the July *Woman's Home Companion*. In this article, Mr. Whitman reports on what medical societies and individual physicians all over the country are doing to take the mystery out of charges for a doctor's services. "How to Choose Your Doctor," by Irwin Ross, is in *Pageant* magazine. This article clearly outlines the steps that should be taken in selecting a family physician. It will be especially helpful to families moving into a new community.

THE SCIENTIFIC EXHIBIT

The Scientific Exhibit, in spite of cramped quarters and difficult access, was visited by most of the 48,000 persons attending the meeting. There were 260 exhibits selected from more than 500 applications for space, resulting in material of high caliber and great teaching value. The medical profession is indebted to the several hundred physicians, scientists, and technicians who spent long weary hours throughout the week demonstrating their exhibits and answering questions. From the standpoint of teaching value, the Scientific Exhibit this year can be considered one of the most instructive that has ever been presented.

Three special exhibits were immensely popular. The committee in charge of the Special Exhibit on Fractures, consisting of Gordon M. Morrison, M.D., Boston, Chairman, Ralph G. Carothers, M.D., Cincinnati, and Herbert Virgin Jr., M.D., Miami, Fla., initiated a somewhat different method of presentation in addition to the plaster demonstrations. As in the past, a fine group of demonstrators carried on throughout the week.

The Special Exhibit on Fresh Pathology, under the guidance of Frank B. Queen, M.D., Portland, Ore., and Milton Helpern, M.D., New York, attracted large crowds continuously. Demonstrations were conducted by an outstanding group of pathologists from over the country as well as from New York.

The Special Exhibit on Artificial Respiration, with Archer S. Gordon, M.D., Chicago, as chairman, was shown for the third time with the assistance of the New York Police Department, the American Red Cross, and the Council on Physical Medicine and Rehabilitation. A competent group of demonstrators was constantly on duty.

The Sections of the Scientific Assembly presented groups of exhibits dealing with their respective specialties. A representative to the Scientific Exhibit was elected by each Section to advise and assist in the procurement of exhibits. Awards consisted of medals, certificates of merit, and honorable mention.

The Section on Anesthesiology had eight exhibits, of which two received awards. Scott M. Smith, M.D., Salt Lake City, was the section representative.

The Section on Dermatology and Syphilology presented 10 exhibits. Three awards were made to the Section, one of which was a silver medal. James R. Webster, M.D., Chicago, was the section representative.

The Section on Diseases of the Chest, had eight exhibits, of which two received awards. The section representative was Edwin R. Levine, M.D., Chicago.

The Section on Experimental Medicine and Therapeutics had a group of 19 exhibits. There were three awards. Joseph F. Ross, M.D., Boston, was the section representative.

The Section on Gastro-Enterology and Proctology presented 16 exhibits, one of which received an award. The section representatives were J. P. Nesselrod, M.D., Evanston, Ill., and William H. Dearing Jr., M.D., Rochester, Minn.

The Section on General Practice had 14 exhibits. Two awards were given. Charles E. McArthur, M.D., Olympia, Wash., was the section representative.

The Section on Internal Medicine presented 22 exhibits. There were four awards, one of which was a gold medal and one a silver medal. The section representative was Wesley W. Spink, M.D., Minneapolis.

The Section on Laryngology, Otolaryngology and Rhinology had a group of eight exhibits, one of which received an award. The section representative was Francis W. Davison, M.D., Danville, Pa.

The Section on Military Medicine presented 13 exhibits from the Air Force, the Army, the Navy, and the Armed

Forces Institute of Pathology. The section representative was Capt. Robert V. Schultz (MC), U. S. N., Washington, D. C. Two awards were given.

The Section on Nervous and Mental Diseases had 10 exhibits, with two awards. G. Wilse Robinson Jr., M.D., Kansas City, Mo., was the section representative.

The Section on Obstetrics and Gynecology had a group of 15 exhibits. There were two awards. Frederick H. Falls, M.D., Chicago, was the section representative.

The Section on Ophthalmology had five exhibits, two of which received awards. The section exhibit committee was as follows: Wm. F. Hughes Jr., M.D., Chicago, Chairman, Walter H. Fink, M.D., Minneapolis, and Donald J. Lyle, M.D., Cincinnati.

The Section on Orthopedic Surgery had a group of 11 exhibits, of which 2 received awards. The section representative was J. Vernon Luck, M.D., Los Angeles.

The Section on Pathology and Physiology presented 14 exhibits, with 2 awards. In addition, the section sponsored the Special Exhibit on Fresh Pathology. Frank B. Queen, M.D., Portland, Ore., was the section representative.

The Section on Pediatrics had 15 exhibits, including an exhibit symposium on the prevention of childhood accidents. There were two awards. The section representative was F. Thomas Mitchell, M.D., Memphis, Tenn.

The Section on Physical Medicine and Rehabilitation presented a group of eight exhibits. There were two awards. Arthur L. Watkins, M.D., Boston, was the section representative.

The Section on Preventive and Industrial Medicine and Public Health had 10 exhibits, of which one received a bronze medal. Paul A. Davis, M.D., Akron, Ohio, was the section representative.

The Section on Radiology had 11 exhibits, with 2 awards. Richard H. Chamberlain, M.D., Philadelphia, was the section representative.

The Section on Surgery, General and Abdominal, presented a group of 23 exhibits. There were four awards, of which one was a bronze medal. The section representative was John H. Mulholland, M.D., Dobbs Ferry, N. Y.

The Section on Urology had seven exhibits, with two awards. Each day there was a general discussion of all urologic exhibits in the exhibit area. The Section exhibit committee consisted of Roger W. Barnes, M.D., Los Angeles, chairman, George H. Ewell, M.D., Madison, Wis., and Norris J. Heckel, M.D., Chicago.

There were 10 exhibits in the miscellaneous group, of which one received an award consisting of a gold medal.

Motion pictures, which usually are shown in an area adjacent to the Scientific Exhibit, were presented this year in the Baltimore Hotel. The average attendance throughout the week was 240. The program, which was arranged by the Committee on Medical Motion Pictures, included 29 films, with a discussion by the author in many instances. The three most popular films, from the standpoint of attendance, were as follows: The Brodie Craniopagus Twins, by Oscar Sugar, M.D., Herbert J. Grossman, M.D., and Paul W. Greeley, M.D., University of Illinois College of Medicine, Chicago; Primary Hyperparathyroidism, by Joel W. Baker, M.D., and Randolph P. Pillow, M.D., the Mason Clinic, Seattle, and Intra Articular Injections of Hydrocortisone, by William B. Rawls, M.D., New York.

The Committee on Awards for the Scientific Exhibit worked hard and faithfully, studying the exhibits during the day and holding sessions far into the night. The complete report of the Committee is as follows:

REPORT OF COMMITTEE ON AWARDS

MEDAL AWARDS

Hektoen Medal—The Hektoen Medal is presented for exhibits of original investigation, which are judged on the basis of originality and excellence of presentation. Three awards are made consisting of gold, silver, and bronze medals.

The **GOLD MEDAL** to Oscar V. Batson, University of Pennsylvania, the Graduate School of Medicine, Philadelphia, for the exhibit on the anatomy of veins.

The **SILVER MEDAL** to C. M. Pomerat, C. George Lefebvre, and McDonald Smith, University of Texas Medical Branch, Galveston, Texas, for the exhibit on tissue cultures in the service of clinical medicine.

The **BRONZE MEDAL** to F. D. Dodrill, Robert A. Gerisch, Edward Hull, and Aran S. Johnson, Harper Hospital, Detroit, for the exhibit on exposure of the pulmonary and mitral valves in living patients with the aid of the mechanical heart.

Billings Medal—The Billings Medal is presented for exhibits which do not exemplify purely experimental studies but are judged on the basis of excellence of correlating facts and excellence of presentation. Three awards are made, consisting of gold, silver, and bronze medals.

The **GOLD MEDAL** to J. Scott Butterworth, Charles A. Poinexter, and C. E. Peterson, New York University Post-Graduate Medical School, and the American Heart Association, New York, for the exhibit on the cardiac silhouette.

The **SILVER MEDAL** to T. J. Dry, R. L. Parker, J. E. Edwards, J. W. Kirklin, R. D. Pruitt, G. W. Daugherty, C. H. Schleisley, A. J. Bruwer, R. G. Tompkins, and A. H. Bulbulian, Mayo Clinic, Rochester, Minn., for the exhibit on diseases of the mitral valve—diagnosis and surgical treatment.

The **BRONZE MEDAL** to Werner Henle, Gertrude Henle, M. Michael Sigel, T. F. McNair Scott, and Klaus Hummeler, the Children's Hospital of Philadelphia, and the University of Pennsylvania School of Medicine, Philadelphia, for the exhibit on the virus diagnostic laboratory.

SECTION AWARDS

Certificates of Merit and Honorable Mention are awarded to the following exhibits in each Section.

Section on Anesthesiology—Certificate of Merit to Robert E. Clark, Louis R. Orkin, and E. A. Rovenstine, New York University Post-Graduate Medical School, New York, for the exhibit on body temperature during anesthesia.

Honorable Mention to Meyer Saklad, Elihu Saklad, and John F. Rockett Jr., Rhode Island Hospital, Providence, R. I., for the exhibit on pressure breathing.

Section on Dermatology and Syphilology—Certificate of Merit to F. Ronchese, B. S. Walker, and R. M. Young, Boston University, Boston, and Rhode Island Hospital, Providence, R. I., for the exhibit on the fluorescence of epidermoid carcinoma under the Wood Light.

Honorable Mention to Theodore Cornbleet and Hubert Catchpole, University of Illinois College of Medicine, Chicago, for the exhibit on keloids treated with hyaluronidase.

Section on Diseases of the Chest—Certificate of Merit to Brian A. Cookson, Daniel F. Downing, Houck E. Bolton, William Likoff, William L. Jamison, Russell W. Weller, and Charles P. Bailey, Hahnemann Medical College and Hospital, Philadelphia, for the exhibit on the role of hypothermia in cardiac surgery.

Honorable Mention to Oscar Auerbach, Harry L. Katz, and Maurice J. Small, Veterans Administration Hospital, East Orange, N. J., and Brooklyn, for the exhibit on effect of streptomycin on the bronchocavitary junction and its relation to cavity healing.

Section on Experimental Medicine and Therapeutics—Certificate of Merit to William Dameshek and Mario Stefanini, New England Center Hospital, Boston, for the exhibit on the blood platelets and idiopathic thrombocytopenic purpura.

Certificate of Merit to Eric T. Yuhl and Lloyd A. Sturtevant, Veterans Administration Center, and School of Medicine, University of California at Los Angeles, Los Angeles, for the exhibit on the use of radioactive isotopes in the various disorders of the liver and biliary tract.

Honorable Mention to Kurt Lange, Lawrence B. Slobody, Frank Craig, Ruth Strang, and Jacob Oberman, New York Medical College, New York, for the exhibit on serum complement levels in glomerulonephritis and the nephrotic syndrome.

Section on Gastroenterology and Proctology—Certificate of Merit to Julian A. Sterling and Ralph Goldsmith, Philadelphia, for the exhibit on newer concepts concerning the common bile ducts.

Section on General Practice—Certificate of Merit to Robert F. Dickey, Thomas A. Hepler, and James A. Collins Jr., Geisinger Memorial Hospital and the Foss Clinic, Danville, Pa., for the exhibit on dermatological manifestations of internal diseases.

Honorable Mention to Jacob J. Silverman and Harold B. Trachtenberg, Staten Island Hospital, Staten Island and New York, for the exhibit on hazards of mercurial diuretics.

Section on Internal Medicine—Certificate of Merit to Elmer C. Bartels, the Lahey Clinic, Boston, for the exhibit on clinical features of gout and its therapy.

Honorable Mention to Harry Mandelbaum and Robert A. Mandelbaum, Jewish Hospital of Brooklyn and Jewish Sanitarium and Hospital for Chronic Diseases, Brooklyn, for the exhibit on clinical ballistocardiography.

Section on Laryngology, Otology and Rhinology—Certificate of Merit to John E. Bordley, William G. Hardy, and Miriam D. Pauls, Johns Hopkins Hospital, Baltimore, for the exhibit on impaired hearing in the preschool child.

Section on Military Medicine—Certificate of Merit to Capt. E. R. Hering (MC), U.S.N., Lieut. Commander F. J. Lewis Jr. (MSC), U.S.N., and Lieut. C. M. Smythe (MC), U.S.N., Bureau of Medicine and Surgery, Navy Department, Washington, D. C., for the exhibit on amphibious and field medicine.

Honorable Mention to Lieut. (j.g.) E. H. Lanphier (MC), U.S.N., Bureau of Medicine and Surgery, Navy Department, Washington, D. C., for the exhibit on medicine and research in diving.

Section on Nervous and Mental Diseases—Certificate of Merit to Kermit E. Osserman and Lawrence I. Kaplan, Mount Sinai Hospital, New York, for the exhibit on myasthenia gravis management and diagnosis with edrophonium chloride (Tensilon).

Honorable Mention to Robert S. Schwab, John A. Abbott, William H. Timberlake, and Elsie Henson, Harvard Medical School and Massachusetts General Hospital, Boston, for the exhibit on control of side-effects of anticonvulsant drugs.

Section on Obstetrics and Gynecology—Certificate of Merit to C. Paul Hodgkinson, Howard P. Doub, and William Boucher, Henry Ford Hospital, Detroit, for the exhibit on urethrovaginal relationships in female urinary stress incontinence metallic bead chain technique.

Honorable Mention to Walter W. Williams, Springfield, Mass., and Melvin R. Cohen, Chicago, for the exhibit on diagnostic survey of the infertile couple.

Section on Ophthalmology—Certificate of Merit to Alson E. Braley, Howard Webster, and Lee Allen, University Hospitals, Iowa City, Iowa, for the exhibit on ocular prosthetics—solutions of several common fitting problems.

Honorable Mention to A. Ray Irvine Jr. and Zoltan Yuhasz, Estelle Doheny Eye Foundation, Los Angeles, for the exhibit on pigmented tumors of external eye and adnexa.

Section on Orthopedic Surgery—Certificate of Merit to C. S. MacCarty, J. M. Waugh, M. B. Coventry, and D. C. Dahlin, Mayo Clinic, Rochester, Minn., for the exhibit on surgical management of sacral chordomas and allied tumors.

Honorable Mention to Dan Baker, Arthur B King, and Willard Dotter, Guthrie Clinic, Sayre, Pa, for the exhibit on the treatment of spondylolisthesis with and without vertebral displacement

Section on Pathology and Physiology—Certificate of Merit to Hans Elias, John E Pauly, and Hans Popper, Chicago Medical School and Hektoen Institute for Medical Research and Cook County Hospital, Chicago, for the exhibit on architecture of the adrenal cortex

Honorable Mention to Clarence C Little, Margaret Dickie, M N Runner, and John L. Fuller, Roscoe B Jackson Memorial Laboratory, Bar Harbor, Maine, for the exhibit on studies in endocrine balance

Section on Pediatrics—Certificate of Merit to Orvar Swenson, Marshall Kreidberg and Carroll Berman, the Boston Floating Hospital for Infants and Children, Boston, for the exhibit on diseases related to pelvic parasymphathetic system—Hirschsprung's disease, megalobladder, and megaloureters

Honorable Mention to Charles W Lester and Walter A Wichern Jr, New York, for the exhibit on congenital and developmental deformities of the chest

Section on Physical Medicine and Rehabilitation—Certificate of Merit to Donald A Covalt and Irving S Cooper, Institute of Physical Medicine and Rehabilitation, New York University Bellevue Medical Center, New York, for the exhibit on early treatment of patients with spinal cord injury

Honorable Mention to Lawrence Linck and Jayne Shover, National Society for Crippled Children and Adults, Chicago, for the exhibit on sheltered employment

Section on Radiology—Certificate of Merit to Fay A LeFevre, Victor G DeWolfe, Alfred W Humphries, Eugene F Poutasse, and J C Root, Cleveland Clinic, Cleveland, for the exhibit on diagnosis of aorta iliac artery occlusion

Honorable Mention to Melvin M Figley, University Hospital, Ann Arbor, Mich, for the exhibit on accessory roentgen signs of coarctation of the aorta

Section on Surgery General and Abdominal—Certificate of Merit to John E Healey Jr and Paul C Schroy, Daniel Baugh Institute of Anatomy Jefferson Medical College, Philadelphia, for the exhibit on intrahepatic distribution of the bile ducts and hepatic arteries

Certificate of Merit to O T Clagett, E A Hines, H B Burchell, D G Pugh and E H Wood, Mayo Clinic, Rochester, Minn, for the exhibit on coarctation of the aorta—diagnosis and surgical treatment

Honorable Mention to John L Madden, John M Loré, Frank P Gerold and Jacob M Ravid, St Clare's Hospital, New York for the exhibit on pathogenesis of ascites in cirrhosis of the liver

Section on Urology—Certificate of Merit to Donald F McDonald, University of Washington School of Medicine, Seattle, for the exhibit on the role of the urine in vesical neoplasm

Honorable Mention to John K Lattimer, Louis L Spivak, and Frank J Lovelock, Veterans Administration Hospital, Bronx, N Y, for the exhibit on chemotherapy of genito urinary tuberculosis

Subsidized Exhibits—The Committee on Awards commends highly the Special Exhibits on Fractures, Fresh Pathology and Artificial Respiration, which are sponsored by the Board of Trustees of the American Medical Association

Comments—The Committee on Awards wishes to express its appreciation to all of the physicians who have so arduously performed their tasks in making this Scientific Exhibit unsurpassed in its quality

Respectfully submitted,

Committee on Awards

WILLIAM B CONDON, M D, Denver, Chairman
S W DONALDSON, M D Ann Arbor Mich
ROBERT M STECHER M D, Cleveland Ohio
RALPH M TOVELL, M D, Hartford, Conn
ROBERT J JOPLIN, M.D., Boston

REGISTRATION AT THE ANNUAL MEETING NEW YORK, JUNE 1-5, 1953

Alabama	72	Montana	11
Alaska	0	Nebraska	41
Arizona	29	Nevada	5
Arkansas	25	New Hampshire	27
California	445	New Jersey	2 149
Canal Zone	2	New Mexico	18
Colorado	80	New York City	3 538
Connecticut	565	New York	3 907
Delaware	70	North Carolina	138
District of Columbia	311	North Dakota	13
Florida	188	Ohio	512
Georgia	87	Oklahoma	47
Hawaii	20	Oregon	42
Idaho	11	Pennsylvania	1 631
Illinois	567	Puerto Rico	32
Indiana	169	Rhode Island	83
Iowa	77	South Carolina	55
Kansas	54	South Dakota	15
Kentucky	81	Tennessee	100
Louisiana	70	Texas	199
Maine	40	Utah	23
Maryland	324	Vermont	24
Massachusetts	537	Virginia	212
Michigan	333	Washington	67
Minnesota	142	West Virginia	77
Mississippi	30	Wisconsin	119
Missouri	134	Wyoming	2
		Total	17 550

OTHER COUNTRIES

Africa	3	Israel	1
Argentina	26	Italy	3
Australia	6	Japan	5
Austria	1	Korea	3
Belgium	1	Lebanon	2
Bolivia	1	Mexico	17
Brazil	34	Netherlands Antilles	2
British Guiana	1	Netherlands West Indies	1
Canada	122	Nicaragua	1
Chile	6	Norway	3
China	6	Okinawa	1
Colombia	22	Paraguay	2
Costa Rica	1	Peru	2
Cuba	32	Philippines	6
Denmark	4	Portugal	4
Dominican Republic	1	Scotland	3
Egypt	6	Spain	1
El Salvador	6	Sweden	4
England	8	Switzerland	1
Finland	1	Thailand	2
Formosa	1	Tunisia	1
France	3	Turkey	4
Germany	3	Venezuela	14
Greece	6	Virgin Islands	1
Guatemala	1	Yugoslavia	1
Holland	4		
Hong Kong	2	Total	408
India	6		17,550
Iran	4		408
Iraq	1		
Ireland	2	Grand Total	17 958

REGISTRATION BY SECTIONS

Anesthesiology	447
Dermatology & Syphilology	620
Diseases of the Chest	419
Experimental Medicine & Therapeutics	117
Gastroenterology & Proctology	385
General Practice	3 036
Internal Medicine	3 116
Laryngology Otolary & Rhinology	498
Military Medicine	115
Nervous & Mental Diseases	570
Obstetrics & Gynecology	1 056
Ophthalmology	740
Orthopedic Surgery	457
Pathology & Physiology	382
Pediatrics	799
Physical Medicine & Rehabilitation	167
Preventive & Industrial Medicine & Public Health	374
Radiology	555
Surgery General & Abdominal	1 969
Urology	361
Session on Allergy	146
More than one Section checked	136
No Section checked	1 493
Total	17,958

MINUTES OF THE SCIENTIFIC SECTIONS

SECTION ON ANESTHESIOLOGY

TUESDAY, JUNE 2—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr Rolland J Whitacre, Cleveland

A business meeting was held during which Dr John S Lundy, secretary, gave a report of the activities of the American Board of Anesthesiology, and Dr Henry S Ruth reported to the Section as its representative to the House of Delegates. Opportunity was given for the presentation of resolutions that anyone wished introduced in the House of Delegates.

Dr John W Pender, Rochester, Minn, read a paper on "Endotracheal Anesthesia in Children for Tonsillectomy and Adenoidectomy and for Other Surgical Procedures of Longer Duration." This paper was discussed by Drs Samuel L Lieberman, Buffalo, A H Kornblau, Jamaica, N Y, Robert M Smith, Boston, and John S Lundy, Rochester, Minn.

Dr E M Papper, New York, read a paper on "Renal Function During Anesthesia and Operation," which was discussed by Drs Urban H Eversole, Boston, Clarence L P Hebert, Staten Island, N Y, and Henry K Beecher, Boston.

Drs Robert E Clark, Louis R Orkin, and E A Rovenstine, New York, presented a paper on "Studies on Body Temperature in Anesthetized Man," which was discussed by Drs Meyer Saklad, Providence, R I, and Henry K Beecher and Robert M Smith, Boston.

Drs Walter H Mannheimer, John Adriani, and Philip Pizzolato, New Orleans, presented a paper on "Histological Changes in Nerve and Soft Tissues After Injection of Various Local Anesthetic Substances." This paper was discussed by Drs Daniel C Moore, Seattle, Albert M Betcher, New York, Francis F Foldes, Pittsburgh, and William K Nowill, Durham, N C.

Dr Lloyd H Mousel, Seattle, read a paper on "Cerebral Edema and Its Relationship to Barbituric Acid Poisoning," which was discussed by Drs Raymond F Courtin, Worcester, Mass, Richard H Barrett, Hanover, N H, Donald E Hale, Cleveland, and Theodore R Robie, East Orange, N J.

Drs F Paul Ansbros, Francis S Latteri, and Albert E Blundell, Brooklyn, presented a paper on "Spinal Anesthesia Prolonged for Fourteen, Eleven, and Seven Days Respectively." This paper was discussed by Drs Max S Sadove, Oak Park, Ill, and Morris J Nicholson, Boston.

WEDNESDAY, JUNE 3—MORNING

The following officers were elected: chairman, Moses Krakow, New York; vice chairman, Bruce Anderson, Oakland, Calif; representative to Scientific Exhibit, Scott Smith, Salt Lake City; nominees to American Board of Anesthesiology, John Dillon, Pasadena, Calif, M C Peterson, Kansas City, Mo, and Morris J Nicholson, Boston.

Dr Francis F Foldes, Pittsburgh, presented the following report as representative of the Section to the Scandinavian Congress of Anesthesiologists and the Austrian Congress of Anesthesiologists:

It has been my privilege to represent the Section on Anesthesiology of the American Medical Association at the Second Scandinavian Congress of Anesthesiologists that was held in Stockholm on Aug 8 and 9 and the First Austrian Congress of Anesthesiologists held in Salzburg on Sept 5 and 6, 1952.

The Congress in Stockholm met at the Karolinska Hospital. It was well attended not only by anesthesiologists from Scandinavia but also those

from other European countries and a small but active delegation came from England and the United States. The main topic of the meeting was muscle relaxants. Several excellent papers were presented on the experimental and clinical aspects of the use of muscle relaxants by Scandinavian anesthesiologists. Dr Beecher of the Harvard Medical School and your representative also read a paper in this symposium. The level of the papers presented and the ensuing discussion was very high and reflected the rapid development of anesthesiology in the Scandinavian countries. The social part of the Congress was also well arranged and the various banquets and excursions were highly impressive.

The First Austrian Congress of Anesthesiology was significant not only because it was the first of its kind in Central Europe but also because it represented the first effort to organize the anesthesiologists of Austria, Germany, and Switzerland into a single group. In contrast to the Scandinavian countries, England, France, and Italy, where organized anesthesiology has existed for many years, the anesthesiologists of Central Europe are at the beginning of a steep and tortuous path. The average Central European surgeon is still to be convinced of the importance of scientific anesthesia and is unwilling to relinquish any of his prerogatives in connection with the management of surgical patients. With few exceptions, the Central European anesthesiologists have a lot to learn but what they lack in knowledge and experience they more than compensate for with their enthusiasm and will to learn. This Congress ran parallel with the annual meeting of the Austrian Medical Association. Its meetings were often better attended than those of the main section. Besides the Austrian, German, and Swiss anesthesiologists, some English, French, and Italian anesthesiologists also presented papers. Dr Cullen of Iowa City and your representative also gave papers. The Congress was organized around two main topics: (1) Anesthesia Problems in Open-Chest Surgery, and (2) Epidural Anesthesia. The beautiful medieval city of Salzburg and its lovely surroundings contributed in no small measure to the success of this very pleasant Congress.

After attending these two meetings as your representative, it is my belief that whenever possible, more of us should try to attend these meetings to talk and see, and to teach and learn.

Dr Harry W Bowman, Bethlehem, Pa, read a paper on "Clinical Evaluation of Dextran as a Plasma Volume Expander." This paper was discussed by Drs I S Ravdin, Philadelphia, Sam F Seeley, Washington, D C, and Frederick M Allen, New York.

Drs Margaret A Clark and Charles D Anderson, Oakland, Calif, presented a paper on "Postoperative Nausea and Vomiting," which was discussed by Drs Robert L Patterson, Pittsburgh, and B B Sankey, Cleveland.

Dr Rolland J Whitacre, Cleveland, delivered his Chairman's Address entitled "The Anesthesiologist's Responsibility to the Patient."

Drs John J Burns, Bernard B Broadie, and Philip A Lief, New York, presented a paper on "The Pharmacologic Basis for the Rational Use of Thiopental in Clinical Anesthesia," which was discussed by Dr Benjamin E Etsten, Boston.

Dr James E Eckenhoff, Philadelphia, and Dr Willy H Dam, Copenhagen, Denmark, presented a paper on "Therapy of Narcotic Poisoning With and Without Analgetics." This paper was discussed by Drs Robert W Lykins, Portsmouth, Va, Howard M Ausherman, Chattanooga, Tenn, and Francis F Foldes, Pittsburgh.

THURSDAY, JUNE 4—MORNING

Drs Bernard E Cappe, Jamaica, N Y, and Irving M Pallin, Brooklyn, presented a paper on "Recent Advances in Obstetrical Analgesics." This paper was discussed by Drs Allan A Gentling, Fort Worth, Texas, and Virginia Apgar, New York.

Drs L Jennings Hampton, New Haven, Conn, and David M Little Jr, Stamford, Conn, presented a paper on "Complications Associated with the Use of 'Controlled Hypotension' in Anesthesia," which was discussed by Drs Stevens J Martin, Hartford, Conn, Scott M Smith, Salt Lake City, and C Paul Boyan, New York.

Drs Randal J M Steven and Ralph M Tovell, Hartford, Conn., presented a paper on "Hexamethonium Salts as an Aid to the Orthopedic Surgeon" This paper was discussed by Drs Francis F Foldes, Pittsburgh, Roger W Ridley, Rochester, Minn., and Harvey C Slocum, Washington, D C

Drs Charles B Pittinger and Lucien E Morris, Iowa City, presented a paper on Placental Transmission of D Tubocurarine Chloride from Mother to Fetus," which was discussed by Drs Ralph T Knight, Minneapolis, Lloyd E Larrick, Cincinnati Virginia Apgar, New York, and Ernesto Frial, Santiago, Chile

Drs Hamilton S Davis and Henry E Kretchmer, Cleveland, and Roger Bryce-Smith, Oxford, England, presented a paper on "The Advantages and Complications of Tracheotomy" This paper was discussed by Drs J Earl Remlinger Jr, Evanston, Ill Alvan L Barach, New York, Kenneth C McCarthy, Toledo, Ohio, Philip Woodbridge, Greenfield, Mass., and Roger Bryce Smith, Oxford, England

Drs Barnett A Greene and Samuel Berkowitz, Brooklyn, presented a paper on 'Tobacco Bronchitis An Anesthesiologic Study,' which was discussed by Dr Alvan L Barach, New York

SECTION ON DERMATOLOGY AND SYPHILOLOGY

TUESDAY, JUNE 2—AFTERNOON

The meeting was called to order at 1 55 o'clock by the chairman, Dr John H Lamb, Oklahoma City

The Nominating committee presented the following nominations chairman, George M Lewis, New York, vice chairman Hamilton Montgomery, Rochester, Minn secretary, J Walter Wilson, Los Angeles, representative to Scientific Exhibit Samuel Bluefarb, Chicago, delegate, Robert R Kierland, Rochester, Minn, alternate delegate Winfred A Showman, Tulsa, Okla representative to American Board of Dermatology and Syphilology, Donald M Pillsbury, Philadelphia

Miss Janet Newkirk, New York, read the report of the representative to the American Board of Dermatology and Syphilology for Dr George M Lewis

Dr James R Webster, Chicago, gave the report of the representative to the Scientific Exhibit

Drs John G Trump Cambridge, Mass, and John L Fromer and Hugh F Hare, Boston, presented a paper on "Cathode Rays in the Treatment of Malignant Lymphomas of the Skin" This paper was discussed by Dr Dan J Kindel, Cincinnati

Dr Paul A OLeary, Rochester Minn, read a paper on "The Uses and Abuses of Corticoid Therapy in Dermatology"

Drs Ben A Newman and Fred F Feldman, Beverly Hills, Calif, presented a paper on "Adult Premenstrual Acne An Entity Suggesting Corpus Luteum Dysfunction" which was discussed by Drs Gerald M Frumess Denver and M B Sulzberger, New York

Drs Clarence S Livingood and Samchai Nilasena Galveston, Texas presented a paper on "The Local Treatment of Cutaneous Bacterial Infections with Erythromycin" This paper was discussed by Drs Donald M Pillsbury Philadelphia Harold B Levin Atlanta, Ga and Roy L Kile, Cincinnati

Drs Robert E Holsinger and John E Dalton Indianapolis, presented a paper on "Isonicotinyl Hydrazine in the Treatment

of Cutaneous Tuberculosis and Allied Conditions" This paper was discussed by Drs H H Sawicky, New Rochelle, N Y, Frank E Cormia, New York and John E Dalton, Indianapolis

Drs Harold N Cole Jr, Paul V Chivington Jr, Harold N Cole, and James R Driver, Cleveland presented a paper on 'Atabrine in the Treatment of Lupus Erythematosus' which was discussed by Dr J Lamar Callaway, Durham, N C

WEDNESDAY, JUNE 3—AFTERNOON

The following officers were elected chairman George M Lewis, New York, vice chairman, Hamilton Montgomery, Rochester, Minn, secretary, J Walter Wilson, Los Angeles representative to Scientific Exhibit, Samuel Bluefarb, Chicago, delegate, Robert R Kierland Rochester, Minn, alternate delegate, Winfred A Showman, Tulsa Okla

Dr John H Lamb, Oklahoma City, read his Chairman's Address entitled "The Role of the Dermatologist in the Care of Cutaneous Malignancy"

Dr Earl D Osborne, Buffalo, read a paper on "Evaluation of Methods Used in the Treatment of Cutaneous Malignancy with Special Reference to Electrothermic Methods"

Dr George C Andrews, New York read a paper on "The Place of Roentgen Radiation in the Treatment of Cutaneous Malignancy"

Drs C Ferd Lehmann and J Lewis Pipkin, San Antonio, presented a paper on "The Use of Radium in the Treatment of Cutaneous Malignancy"

Dr Eugene F Traub, New York read a paper on "The Diagnosis and Treatment of Carcinoma of the Eyelids"

Drs J B Howell, Dallas Texas, and J Murray Riddell, Fort Worth, Texas, presented a paper on "Carcinoma of the Forehead and Scalp"

The papers by Drs Osborne, Andrews Lehmann and Pipkin Traub and Howell and Riddell were discussed by Drs Howard Hailey Atlanta, Ga James R Driver, Cleveland, and Joseph J Eller, New York, and in closing by Drs Traub Pipkin Andrews, and Osborne

THURSDAY, JUNE 4—AFTERNOON

Drs Molleurus Couperus, Los Angeles and Rufus C Rucker, Chico, Calif, presented a paper on "The Histopathologic Diagnosis of Malignant Melanoma," which was discussed by Dr Samuel W Becker Jr, Washington, D C, and Dr Couperus

Dr C H McCuiston, Austin, Texas read a paper on "The Persistence of Untreated Hemangiomas from Infancy Into Adult Life" This paper was discussed by Dr Francesco Ronchese, Providence, R I, and Dr McCuiston

Drs Rees B Rees and James H Bennett San Francisco, presented a paper on "Swimming Pool Abrasion Granuloma" This paper was discussed by Drs D E H Cleveland, Vancouver B C, Canada, Norman N Epstein, San Francisco Adolph Rostenberg Jr, Chicago, Howard Hailey, Atlanta, Ga and Dr Rees

Dr Albert M Kligman, Philadelphia, read a paper on "The Biological Effects of Superficial Roentgen Rays on the Scalp with Special Reference to Epilation," which was discussed by Drs Paul Gross, New York, and Dr Kligman The prepared discussion of Dr George M Lewis, New York, was read by Dr Wiley M Sams, Miami, Fla

Drs M G Fredericks and Frederic T Becker, Duluth, Minn., presented a paper on "The Management of Dyshidrosis: An Analysis of Vesicular and Pustular Eruption of the Hands and Feet of the Dyshidrotic Type." This paper was discussed by Dr Julius Ginsberg, Chicago, and Dr Fredericks.

Dr Ervin H Epstein, Oakland, Calif., read a paper on "The Association of Muco-Cutaneous and Visceral Malignancies," which was discussed by Drs Anthony C Cipollaro and Sigismund Peller, New York, A J Reiches, St Louis, and Dr Epstein.

SECTION ON DISEASES OF THE CHEST

TUESDAY, JUNE 2—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr Joseph C Placak Sr, Cleveland.

An address was presented by the chairman, Dr Joseph C Placak Sr, Cleveland.

A paper entitled "Mediastinal Tumors: A Survey of Modern Concepts in Diagnosis and Management" by Drs J Winthrop Peabody Jr, Lawrence H Strug, and James D Rives, New Orleans, was presented by Dr Peabody.

A paper entitled "Clinical Observations in the Origins of Pulmonary Cysts, Bronchiectasis and Emphysema" was presented by Dr Edgar Mayer, New York.

Dr Andrew L Banyai, Milwaukee, served as moderator of the panel on "Diagnosis of Chest Diseases," in which Dr James S Edlin, New York, presented seven case histories. The panel discussers were Drs John S Bouslog, Denver, Jerome R Head, Chicago, and David M Spain, Valhalla, N Y.

WEDNESDAY, JUNE 3—AFTERNOON

The following officers were elected for one year terms: chairman, Dr Jay Arthur Myers, Minneapolis; vice chairman, Dr Andrew L Banyai, Milwaukee; delegate, Dr Hollis E Johnson, Nashville, Tenn.; alternate delegate, Dr Edward W Hayes, Monrovia, Calif.; ex officio officers: Drs J Winthrop Peabody, Washington, D C, and Joseph Placak Sr, Cleveland. The secretary, Dr John F Briggs, St Paul, continues in office.

Panel papers on the "Diagnosis and Treatment of Hypertension" were presented by Drs Irvine H Page, Cleveland, Robert W Wilkins, Boston, Keith S Grimson, Durham, N C, and S W Hoobler, Ann Arbor, Mich., with Dr Edgar V Allen, Rochester, Minn., acting as moderator.

A Symposium on Modern Trends in Chest Surgery, with Dr Alfred Goldman, Beverly Hills, Calif., acting as moderator, was presented, during which the following papers were given: "Surgical Management of Benign and Malignant Tumors of the Lung: Discovered in X-Ray Survey" by Dr Brian B Blades, Washington, D C; "Surgical Treatment of Bronchiectasis: Indications and Results" by Drs Richard H Overholt and Francis M Woods, Brookline, Mass.; "Modern Surgical Management of Mediastinal Infection and Tumors" by Dr Arthur S W Touroff, New York. General discussion from the floor followed.

THURSDAY, JUNE 4—AFTERNOON

Joint Meeting with Section on General Practice

During a panel on the "Diagnosis and Treatment of Cardiac Emergencies," with Dr Arthur M Master, New York, acting as moderator, the following papers were presented: "Treatment of Left Heart Failure, Particularly Pulmonary Edema" by Dr Clarence E De la Chapelle, New York; "The Treatment

of Coronary Occlusion Including Shock" by Dr Herrman L Blumgart, Boston; "The Treatment of Cardiac Arrhythmias" by Drs Myron Prinzmetal and S Rexford Kennamer, Beverly Hills, Calif.

During a panel on the "Diagnosis and Treatment of Surgical Emergencies of the Chest," with Dr Ivan D Baronofsky, Minneapolis, acting as moderator, the following papers were presented: "Thoracic Vascular Emergencies" by Dr Frank L A Gerbode, San Francisco; "Emergencies of the Lung and Esophagus" by Dr J Gordon Scannell, Boston; "Chest Wall Injuries" by Dr Donald L Paulson, Dallas, Texas. Discussion from the floor followed.

SECTION ON EXPERIMENTAL MEDICINE AND THERAPEUTICS

TUESDAY, JUNE 2—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr Maurice H Seevers, Ann Arbor, Mich.

Opening the Symposium on Recent Advances in Nephritis, Dr Henry D Lauson, New York, read a paper entitled "Recent Advances in Some Aspects of Kidney Physiology." Dr John K. Clark, Philadelphia, discussed Dr Lauson's paper.

Dr William Goldring, New York, read a paper entitled "Clinical Application of Current Tests of Renal Function," which was discussed by Drs Arthur M Fishberg and David S Baldwin, New York.

Dr Hugh R Butt, secretary, read a paper by Dr Charles A Janeway, Boston, entitled "Acute Glomerulonephritis: Recent Concepts of Etiology and Pathogenesis." This paper was discussed by Drs Kurt Lange, New York, and David Seegal, Welfare Island, N Y.

A paper entitled "Recent Advances in the Treatment of Acute and Chronic Renal Insufficiency," was read by Dr A C Corcoran, Cleveland, and was discussed by Drs Ernest E. Muirhead, Dallas, Texas, and Herbert Chasis and Benjamin Jablons, New York.

A paper entitled "Recent Advances in the Management of the Nephrotic State" by Dr John A Luetscher, Quinim B Deming, Ben B Johnson, and Carolyn F Piel, San Francisco, was read by Dr Luetscher and was discussed by Drs Conrad M Riley, New York, and Guy W Daugherty, Rochester, Minn.

A paper entitled "The Outlook for the Nephritic Patient," was read by Dr Norman M Keith, Rochester, Minn., and was discussed by Dr Robert F Loeb, New York.

WEDNESDAY, JUNE 3—MORNING

The following officers were elected: chairman, Irvine H Page, Cleveland; vice chairman, Hugh R Butt, Rochester, Minn.; and secretary, George E Burch, New Orleans.

Dr Maurice H Seevers, Ann Arbor, Mich., read his Chairman's Address entitled "Perspective Versus Caprice in Evaluating Toxicity of Chemicals in Man."

Drs Martin M Fisher and N David Wilensky, Brooklyn, presented a paper entitled "Trypsin Intravenously in Peripheral Vascular and Thromboembolic Diseases." This paper was discussed by Drs Irving Innerfield, Nyack, N Y, and Irving S Wright and Alfred Schwarz, New York.

The Minot Lecture, "Subacute Bacterial Endocarditis: The Present Day Treatment," was presented by Dr Chester S. Keefer, Boston.

Dr Jerry Zaslow, Philadelphia, read a paper entitled 'The Rational Use of Chemotherapeutic and Antibiotic Agents in the Treatment of Biliary Tract Disease,' which was discussed by Drs Waltman Walters, Rochester, Minn, and I S Ravdin, Philadelphia

A paper by Drs Harry Shay, Chris J D Zarafonitis, Nathan J Smith, and Irving Woldow, Philadelphia, entitled 'Preliminary Results in the Treatment of Experimental and Clinical Leukemia with Triethylene Thio-Phosphoramidate (Thio Tepa),' was read by Dr Shay and was discussed by Drs James A Wolff, New York, and J Minott Stickney, Rochester Minn

THURSDAY, JUNE 4—MORNING

A joint meeting was held with the Section on Internal Medicine The proceedings are reported in the minutes of that Section

SECTION ON GASTROENTEROLOGY AND PROCTOLOGY

TUESDAY, JUNE 2—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr Louis E Moon, Omaha

A paper entitled 'The Surgical Management of Ulcerative Colitis,' by Drs Harry E Bacon and Howard D Trimpi, Philadelphia, was read by Dr Bacon and was discussed by Drs Rupert B Turnbull Jr., Cleveland, Garnet W Alt, Washington, D C, J Arnold Bargen, Rochester, Minn, Z T Bercovitz, New York, Donovan C Browne, New Orleans, and Walter L Palmer, Chicago, and, in closing, by Dr Trimpi

A paper entitled "The Problems of Gastric Ulcer Reviewed," by Drs M Frances H Smith, Russell S Boles Jr, and Sara M Jordan, Boston, was read by Dr Smith This paper was discussed by Drs Russell S Boles and Henry L Bockus, Philadelphia, and Frank H Lahey, Boston, and, in closing, by Dr Jordan

A paper entitled Vagotomy as a Prophylactic and Curative Procedure in Peptic Ulcer, was presented by Drs Waltman Walters, Donald P Chance, and Joseph Berkson, Rochester, Minn, and was discussed by Drs H Marvin Pollard, Ann Arbor, Mich, Lester R Dragstedt, Chicago, and Frank H Lahey, Boston, and, in closing, by Dr Walters

A paper entitled 'The Role of the Anticholinergic Drugs in the Treatment of Ulcer,' by Drs J M Ruffin, E C Texter Jr, D D Carter, and G J Baylin, Durham, N C, was read by Dr Ruffin and was discussed by Drs William C Boeck, Beverly Hills, Calif, and Walter L Palmer, Chicago, and, in closing, by Dr Ruffin

A paper entitled 'Peptic Esophagitis Clinical, Radiographic and Endoscopic Features' by Drs Asher Winkelstein Bernard S Wolf, Max L Som, and Richard H Marshak, New York, was read by Dr Winkelstein

A paper entitled 'Uncommon Benign Lesions of the Lower Esophagus and Cardia of the Stomach,' by Drs Ralph Adams, Brookline, Mass, and Sidney B Luria, Waterbury Conn, was read by Dr Adams These two papers were discussed by Drs Richard Schatzkin, Brookline Mass, Franz J Ingelfinger and Walter B Hoover, Boston, and, in closing, by Dr Winkelstein

WEDNESDAY, JUNE 3—MORNING

The following officers were elected chairman, Dr Donovan C Browne, New Orleans, vice chairman, Dr Harry E Bacon, Philadelphia, secretary, Dr Everett D Kiefer, Boston, repre-

sentatives to Scientific Exhibit, Drs William H Dearing Rochester, Minn, and J P Nesselrod, Evanston, Ill and representative to American Board of Proctology, Dr Louis E Moon, Omaha

Dr Guy L Kratzer, Allentown Pa read a paper entitled 'Recurrent Anal Fissure A Concept of Pathogenesis and Treatment,' which was discussed by Drs Paul J Fuzy, Youngstown, Ohio, and Henry C Schneider, Philadelphia, and, in closing, by Dr Kratzer

The chairman, Dr Louis E Moon, Omaha, read his address entitled 'Proctologic Help for the General Practitioner and the Diagnostician'

A paper entitled 'The Role of Antibiotics in the Management of Amebiasis,' by Drs G Gordon McHardy and William W Frye, New Orleans, was read by Dr McHardy and was discussed by Drs W A Sodeman and Donovan C Browne, New Orleans, and Louis Carp, New York, and, in closing, by Dr Frye

A paper entitled 'Long Term Results in Corticotropin Treated Ulcerative Colitis,' by Drs C Wilmer Wirts, Martin E Rehfuess, and Herbert A Yantes, Philadelphia, was read by Dr Wirts and was discussed by Drs Thomas E Machella, Philadelphia, and Thomas P Almy, New York, and, in closing, by Dr Wirts

Dr Mark M Marks, Kansas City, Mo, read his paper entitled 'Antibiotic Residues in the Treatment of Nonspecific Ulcerative Colitis' This paper was discussed by Drs Z T Bercovitz and Asher Winkelstein, New York, and, in closing, by Dr Marks

A paper entitled 'Cecostomy and Colostomy in Acute Colon Obstructions Experiences in Ninety Nine Cases' by Drs Frank J Rack and Kenneth W Clement, Cleveland Ohio, was read by Dr Rack and was discussed by Drs Howard D Trimpi, Philadelphia, and Leland S McKittrick, Brookline, Mass, and, in closing, by Dr Rack

THURSDAY, JUNE 4—MORNING

Joint Meeting with Section on Pathology and Physiology

Dr Neil W Swinton, Boston, read his paper entitled 'Polyps of the Colon and Rectum,' which was discussed by Drs Marie Ortmyer, Chicago, Jay M Garner, Winnetka, Ill, Robert A Scarborough, San Francisco, and, in closing, by Dr Swinton

A paper entitled 'Pathology of Regional Ileitis and Ulcerative Colitis,' by Drs Shields Warren and Sheldon C Sommers, Boston was read by Dr Warren and was discussed by Drs Bentley P Colcock, Boston, and Burrill B Crohn New York, and, in closing by Dr Warren

A paper entitled 'The Role of the Adrenal Steroids in the Pathogenesis of Peptic Ulcer,' by Drs Seymour J Gray, Colin G Ramsey, Robert W Reifenshtein, and John A Benson, Boston, was read by Dr Gray This paper was discussed by Drs Harry Shay, Philadelphia, David J Sandweiss Detroit, Morton I Grossman, Chicago, Asher Winkelstein, New York, and, in closing by Dr Gray

Dr Franklin Hollander, New York, read his paper entitled 'The Two-Component Mucous Barrier Its Role in Protecting the Gastrointestinal Mucosa Against Peptic Ulceration' This paper was discussed by Drs J Earl Thomas, Philadelphia, and, in closing, by Dr Hollander

A paper entitled 'Enterobius Vermicularis Granuloma of the Appendix Vermiformis,' by Drs John R Schenken, Omaha, Francis C Coleman, Des Moines, Iowa, and Emma

S Moss, New Orleans, was read by Dr Schenken Dr William J Eckerle, Rolling Hills, Calif, read his paper entitled 'The Management of Enterobiasis' These two papers were discussed by Drs Emma S Moss and G Gordon McHardy, New Orleans, and, in closing, by Dr Eckerle

A paper entitled 'The Oral Use of Hydrocortisone (Compound F) in the Treatment of Sprue,' by Drs David Adlersberg, Henry Colcher, and Chun I Wang New York, was read by Dr Adlersberg and was discussed by Dr Perry J Culver, Boston, and, in closing, by Dr Adlersberg

SECTION ON GENERAL PRACTICE

TUESDAY, JUNE 2—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman Dr Richard A Mills

Dr Richard A Mills, Fort Lauderdale, Fla, delivered the Chairman's Address entitled 'The Family Doctor and Heart Disease with Emphasis on Its Iatrogenic Aspects'

A Panel Conference and Symposium on Management and Mismanagement of the Failing Heart was conducted by Dr Harry Gold, New York, moderator

The participants included Drs Walter C Alvarez, Chicago, E Cowles Andrus, Baltimore, William Dock, Arthur C De Graff, Arthur M Fishberg, Walter Modell, and Irving S Wright, New York, and Henry A Schroeder, St Louis

WEDNESDAY, JUNE 3—AFTERNOON

The following officers were elected chairman, Frederic Ewens, Manhattan Beach, Calif, vice chairman, Lowry H McDaniel, Tyronza, Ark, representative to Scientific Exhibit Charles E McArthur, Olympia, Wash

Dr Paul A Davis, Akron, Ohio, submitted his report as the delegate of the section to the House of Delegates

The members voted to adopt the Wyeth Educational Foundation Fund program submitted by Dr Milton B Casebolt, Kansas City, Mo

Dr Goodrich C Schaffler, Portland, Ore read a paper entitled, "General Practice Aspects of Pediatric Gynecology, which was discussed by Dr Robert B Greenblatt, Augusta, Ga

Dr John J Bonica, Tacoma, Wash, read a paper entitled 'The Management of Cancer Pain' This paper was discussed by Dr Raymond W Houde, New York

Dr Walter J Reich, Chicago, read a paper entitled "Diagnosis and Management of Abnormal Uterine Bleeding"

Dr Paul S Williamson, Memphis, Tenn, read a paper entitled "Stress and Tension Enemies of the Future"

Dr Philip Thorek, Chicago, read a paper entitled 'The Esophagus and the General Practitioner, which was discussed by Dr S A Mackler, Chicago

A paper by Drs Evelynne G Knouf, South Pasadena, Calif, and Dr Albert G Bower, Pasadena, Calif, entitled 'A Successful Method of Treating Measles Encephalitis with Typhoid Vaccine,' was read by Dr Evelynne G Knouf

THURSDAY JUNE 4—AFTERNOON

A joint meeting was held with the Section on Diseases of the Chest The proceedings are reported in the minutes of that section

SECTION ON INTERNAL MEDICINE

TUESDAY JUNE 2—MORNING

The meeting was called to order at 9 o'clock by the chairman Dr Truman G Schnabel, Philadelphia

Drs Earl N Silber and Louis N Katz Chicago, presented a paper on, 'Coronary Dilators and Angina A Re appraisal,' which was discussed by Drs A Carlton Ernestene, Cleveland, and Joseph E F Riseman, Boston

Drs W A Jeffers, C C Wolferth, H A Zintel, J H Hafkenschiel Jr, A G Hills, and A M Sellers, Philadelphia, presented a paper on 'The Clinical Course of 82 Patients with Severe Hypertension Following Adrenal Resection and Sympathectomy' This paper was discussed by Drs William Dock, Brooklyn, and Frederick M Allen, New York

Dr Paul D White, Boston, presented "The Billings Lecture The Principles and Practice of Prognosis"

Drs Rulon W Rawson, J E Rall and J Robbins, New York, presented a paper on 'The Use and Misuse of Radioiodine,' which was discussed by Dr Robert H Williams, Seattle

Drs Carroll M Leevy, Myra R Zinke, Thomas J White, and Angelo M Gnassi, Jersey City, N J., presented a paper on 'Clinical Observations of the Fatty Liver' This paper was discussed by Drs Mary Ann Payne, New York, and Thomas C Chalmers, Cambridge, Mass

Drs Chris J McLoughlin and Lester M Petrie, Atlanta, Ga, presented a paper on 'Diagnostic Significance of Blood Sugar Findings' This paper was discussed by Drs Garfield G Duncan, Philadelphia, and Russell E Teague, Harrisburg, Pa

WEDNESDAY, JUNE 3—MORNING

The following officers were elected chairman, Herrman L Blumgart Boston vice chairman, Willis M Fowler, Iowa City, secretary, A Carlton Ernestene, Cleveland, representative to Scientific Exhibit, John S Lawrence Los Angeles, delegate, Charles T Stone Sr Galveston, Texas, alternate delegate, William D Stroud, Philadelphia

Drs Joseph Felsen and William Wolarsky, New York, presented a paper on 'Acute and Chronic Bacillary Dysentery' which was discussed by Drs Walter L Palmer, Chicago, and F S Cheever, Pittsburgh

Drs W D Sutliff and L L Burkett, Memphis, Tenn., presented a paper on 'Active Chronic Pulmonary Histoplasmosis, which was discussed by Drs Hollis E Johnson Nashville, Tenn., and David T Smith, Durham, N C

Dr Truman G Schnabel, Philadelphia, read his chairman's address entitled 'Some Reflections on the American Board of Internal Medicine'

Drs Richard S Gubner Brooklyn, E W Dennis, Rensselaer, N Y, Chester M Suter, Albany, N Y, and H E Ungerleider, New York, presented a paper on "Effect of a Monocaproyl Derivative of Diaminodiphenylsulfone (Equilite) in Experimental and Clinical Tuberculosis' This paper was discussed by Dr Benjamin Burbank, Brooklyn

Drs Robert F J Hilker, Carl E Billings, and Paul S Rhoads, Chicago presented a paper on 'The Clinical Use of 1 Hydrazinophthalazine and Hexamethonium in the Treatment of Hypertension, which was discussed by Drs Edward Meilman, Boston, and Irvine H Page, Cleveland

Drs Olof H Pearson, Charles D West, and Norman E Treves New York presented a paper on 'Evaluation of Endocrine Therapy for Advanced Breast Cancer,' which was discussed by Dr Albert Segaloff, New Orleans

THURSDAY, JUNE 4—MORNING

Joint Meeting with Section on Experimental Medicine and Therapeutics

Dr Arthur Selzer, San Francisco, read a paper on "Defects of the Cardiac Septa," which was discussed by Drs Robert E Gross, Boston, Charles P Bailey, Philadelphia, and Henry Swan, Denver

Dr Richard J Bing, Birmingham, Ala, read a paper on Pulmonary Stenosis, which was discussed by Dr Henry Bahnson, Baltimore

Dr C Sidney Burwell, Boston, read a paper on 'Ductus Arteriosus and Vascular Rings' This paper was discussed by Dr John C Jones, Los Angeles

Dr George C Griffith Pasadena Calif, read a paper on "Unusual Manifestations Influencing Surgery of Coarctation of the Aorta" which was discussed by Drs O T Clagett, Rochester, Minn and John C Jones, Los Angeles

Drs E Cowles Andrus, Alfred Blalock, and William R Milnor, Baltimore, presented a paper on Mitral Stenosis" This paper was discussed by Drs Robert P Glover, Philadelphia Dwight E Harken, Boston, and Charles P Bailey, Philadelphia

SECTION ON LARYNGOLOGY, OTOTOLOGY AND RHINOLOGY

TUESDAY, JUNE 2—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr Dean M Lierle Iowa City

Dr Francis W Davison, Danville, Pa., introduced the scientific exhibitors

Dr Lawrence R Boies, Minneapolis read a paper on "Management of Chronic Maxillary Disease

Dr Fred W Dixon, Cleveland, read a paper on "Management of Chronic Ethmoid and Sphenoid Sinusitis"

Dr Walter P Work, San Francisco, read a paper on 'The Frontal Sinuses in Relation to Trauma Initial and Subsequent Care'

These papers were discussed by Drs Walter E Heck, San Francisco, Gordon F Harkness Davenport, Iowa Dean M Lierle Iowa City, Fred Z Havens, Rochester Minn Abraham Goldner, Flushing, N Y, Oscar Rodin, Westfield, Mass, and Walter D Klesstadt, Fall River, Mass

Dr Hans Von Leden, Evanston, Ill, presented a motion picture, 'Commando Operation for Carcinoma of Head and Neck'

WEDNESDAY JUNE 3—AFTERNOON

The following officers were elected chairman, Sam H Sanders, Memphis, Tenn vice chairman, Alden H Miller, Los Angeles, secretary Hugh A R Kuhn, Hammond Ind, representative to Scientific Exhibit, Walter E Heck, San Francisco

Dr Gordon F Harkness presented his report from the House of Delegates

Dr Dean M Lierle, Iowa City, read his chairman's address entitled 'Surgical Treatment of Persistent Thyroglossal Ducts and Cysts'

Dr Stewart G Wolf, Oklahoma City, presented a paper on "Reaction in the Nasal Mucosae The Relation of Life Stress to Chronic Rhinitis and Sinus' Headache'

This paper was discussed by Drs Edmund P Fowler Jr, George E Daniels, Emil Glas, and Lester L Coleman, New York Walter B Hoover, Boston, and Abraham I Goldner, Flushing, N Y

Dr Joel J Pressman, Los Angeles, presented a paper on 'Cancer of the Larynx Laryngoplasty to Avoid Laryngectomy' which was discussed by Drs De Graaf Woodman, and John F Daly, New York, Joseph I Kemler, Baltimore, and Fred Z Havens, Rochester, Minn

Dr Philip E Meltzer, Boston, read a paper on "Technique on Removal of Adenoid Tissue of the Nasopharynx in Children" This paper was discussed by Drs Joseph L. Goldman, New York, and Ernest Reeves, Passaic, N J

THURSDAY, JUNE 4—AFTERNOON

Dr J W McLaurin, Baton Rouge, La, read a paper on Otitis Externa The Facts of the Matter," which was discussed by Drs Joseph L Goldman and Emil Glas, New York, and Louis J Goldstein, Bronx, N Y

Dr John Marquis Converse, New York, presented a paper on The Treatment of Traumatic Deformities of the Face," which was discussed by Drs V H Kazanjian, Boston, and Thomas William Stevenson and Martyn Kafka, New York

Dr J Brown Farrior, Tampa, Fla, read a paper on 'The Fenestration Operation Analyzed for the Nonfenestrating Otologist' This paper was discussed by Drs Clair M Kos, Iowa City, and Arthur L Juers, Miami, Fla

Dr Edmund Prince Fowler Sr, New York, read a paper on Otosclerosis in Identical Twins Factors in Onset, Exacerbation and Stabilization" This paper was discussed by Drs Franz Altmann and Abraham I Goldner, Flushing, N Y

SECTION ON MISCELLANEOUS TOPICS

Session on Allergy

WEDNESDAY, JUNE 3—AFTERNOON

The meeting was called to order at 2 o'clock by the co-chairman, Dr J Warrick Thomas, Richmond, Va

Dr Leon Unger, Chicago, read a paper on "The Use and Abuse of Cortisone and ACTH in Allergic Disease" This paper was discussed by Dr Louis Levin, Brooklyn

Dr Oscar Swineford Jr, Charlottesville, Va, read a paper on Classification of Asthma which was discussed by Drs Henry T Friedman and Ben C Eisenberg, Beverly Hills, Calif, Jack A Rudolph, Miami Beach, Fla, and S J Prigal, New York

Dr George L. Waldbott Detroit, read a paper on Non-infectious Pneumonitis in Incipient Asthma"

Dr Walters S Burrage, Boston, co-chairman presided over the remainder of the meeting

Drs Adolph Rostenberg Jr, and James R Webster, Chicago, presented a paper on 'Mechanism of Drug Reactions'

Dr Giles A Koelsche, Rochester, Minn, acting as moderator of a Panel Discussion, presented a case history which

was discussed by the members of the panel, Drs Walter S Burrage, Boston, Samuel M Feinberg, Chicago, Bret Ratner, New York, Harry L Rogers, Philadelphia, Bram Rose, Montreal, Canada, and J Warrick Thomas, Richmond, Va

Dr Henry T Friedman, Beverly Hills, Calif, discussed the panel presentation from the floor

SECTION ON MILITARY MEDICINE

WEDNESDAY, JUNE 3—AFTERNOON

The meeting was called to order at 2 o'clock, the chairman of the section, Dr Richard A Kern, presiding

The following officers were elected chairman, Major Gen Harry G Armstrong, Washington, D C, vice chairman, Dr I S Ravdin, Philadelphia, secretary, Col Charles L Leedham, Washington, D C

Dr Richard A Kern, Philadelphia, Pa, presented his Chairman's Address

A paper on "Helicopters in Peace and War" by Brig Gen M S White and Major Robert W Merkle, Langley Air Force Base, Va, was presented by Gen White, and was discussed by Brig Gen Alvin L Gorby Washington, D C

Dr Melvin A Casberg, Washington, D C, presented a paper on 'Office of the Assistant to the Secretary of Defense (Health and Medical)—Organizational and Functional Evolution'

Col William W Roe Jr, Washington, D C, presented a paper on 'Status of Physicians' Draft Present and Future'

Col Fratis L Duff, Washington, D C, presented a paper on 'Preventive Medicine Problems in Global Air Deployment,' which was discussed by Col Theodore C Bedwell Jr, Washington D C, and Lieut Col John Rizzolo, Gunter Air Force Base Ala

A paper on "Resuscitation of the Severely Injured Battle Casualties" by Capt John M Howard and Lieut Col William H Crosby Jr, Washington D C, was presented by Colonel Crosby, and was discussed by Dr Francis D Moore, Boston

A paper on "Advancements in Submarine Medicine" by Commander Gerald J Duffner and Commander Jack L Kinsey, New London, Conn, was presented by Commander Duffner, and was discussed by Commander H J Alvis, New London, Conn

THURSDAY, JUNE 4—AFTERNOON

Brig Gen Sam F Seeley, Washington D C, presented a paper on "Intra-Arterial Transfusion, which was discussed by Capt Robert B Brown, Bethesda, Md, and Lieut Frank Cole Spencer, Los Angeles

A paper on "Academic Freedom in Military Medical Research by Dr Howard T Karsner and Commander R A Phillips, Washington, D C, was presented by Commander Phillips, and was discussed by Drs Lowell T Coggeshall, Chicago, and Stanhope Bayne Jones, New York

Col Donald S Wenger, Washington, D C, presented a paper on 'Medical Aspects of Crash Injuries This paper was discussed by Col Ralph E Switzer, San Bernardino, Calif, and Lieut Col Robert A McCall, Washington, D C

A paper on "Observations of the Fundus Oculi During Blackout" by Lieut T D Duane, and Lieut Commander Edward L Beckman, Johnsville, Pa, was presented by Lieutenant Duane, and was discussed by Col Victor Burns, Randolph Field, Texas

SECTION ON NERVOUS AND MENTAL DISEASES

TUESDAY, JUNE 2—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr Francis M Forster, Washington, D C

A paper entitled 'The Common Whiplash Injuries of the Neck,' by Drs James R Gay, White Plains, N Y, and Kenneth H Abbott, Columbus, Ohio, was read by Dr Gay, and was discussed by Dr Byron P Stoolley, New York, and, in closing, Dr Gay

Dr J Rudolph Jaeger, Philadelphia, read a paper entitled 'Congenital Spinal Meningocele' This paper was discussed by Drs Edgar A Kahn, Ann Arbor, Mich, Clemens E Benda, Waverley, Mass, Harold C Voris, Chicago, and, in closing, Dr Jaeger

A paper entitled "Technical Suggestions for the General Surgeon in the Care of Suspected Middle Meningeal Hemorrhage Under Emergency Conditions," by Drs R B and A A Raney, Los Angeles, was read by Dr R B Raney, and was discussed by Drs Lester A Mount, New York, E S Gurdjian, Detroit, and, in closing, Dr Raney

Dr Frank H Mayfield, Cincinnati, Ohio, read a paper entitled 'The Role of the Cervical Roots in the Production of Pain in the Head and Face,' which was discussed by Dr E Jefferson Browder and A M Rabiner, Brooklyn, and, in closing, Dr Mayfield

A paper entitled "Complications Following Cerebral Angiography with Diodrast," by Drs Dogan Perese, William C Kite Jr, Arthur J Bedell, and Eldridge H Campbell, Albany, N Y, was read by Dr Campbell, and was discussed by Drs A Earl Walker, Baltimore, John P Gallagher, Washington, D C, and, in closing, Dr Campbell

Dr Francis C Grant, Philadelphia, read a paper entitled 'Review of Surgical Results in a Series of 1 800 Brain Tumors Followed for at Least Five Years' This paper was discussed by Drs Matthew T Moore, Philadelphia, Clarence S Greene, Washington, D C, and, in closing, Dr Grant

WEDNESDAY, JUNE 3—AFTERNOON

The following officers were elected chairman, Dr A Earl Walker, Baltimore, vice chairman, Dr Abe Hauser, Houston, Texas, secretary, Dr Karl O Von Hagen, Los Angeles, delegate, Dr Hans H Reese, Madison, Wis, alternate delegate, Dr Paul C Bucy, Chicago, representative to American Board of Neurosurgery, Dr Edgar F Fincher, Atlanta, Ga, representative to American Board of Psychiatry and Neurology, Dr George N Raines, Portsmouth, Va, representative to Scientific Exhibit, Dr G Wise Robinson, Kansas City, Mo

Dr Hans H Reese, Madison, Wis, reported as delegate to the House of Delegates On motion of Dr T R Robie, East Orange, N J, which was duly seconded it was voted unanimously that the section should be represented on the Council on Physical Medicine and Rehabilitation

On motion of Dr Charles Rupp Jr, Philadelphia, seconded by Drs Frank H Luton, Nashville, Tenn, and Roland P Mackay Chicago it was voted unanimously that the membership of the Committee on Mental Health should be more equally distributed among representatives of neurology, psychiatry, and neurosurgery

Dr Karl O Von Hagen, Los Angeles, secretary of the section, read the report on the American Board of Psychiatry and Neurology, which was adopted

Dr Von Hagen then read a report on the American Board of Neurosurgery which was approved

The chairman of the section, Dr Francis M Forster, Washington, D C, read his Chairman's Address entitled "The Development and Future of the Section on Nervous and Mental Diseases"

A paper entitled "Clinical Implications of Recent Studies of the Cerebral Circulation," by Drs Henry A Shenkin and Paul Novack, Philadelphia, was read by Dr Shenkin and was discussed by Drs Charles Rupp Jr and Michael Scott, Philadelphia, and, in closing, Dr Shenkin

A paper entitled 'The Social Psychological Therapy of Epilepsy,' by Drs William G Lennox and Charles H Markham, Boston, was read by Dr Lennox This paper was discussed by Dr H Houston Merritt New York

A paper entitled Cerebral Complications Associated with Pregnancy," by Drs Benjamin Boshes and Juanita G McBeath, Chicago, was read by Dr Boshes, and was discussed by Dr Theodore J C von Storch, New York, and, in closing Dr Boshes

A paper entitled "Antispasmodic Compound 08958 in the Treatment of Parkinsonism" by Drs Kenneth R Magee and Russell N DeJong, Ann Arbor, Mich, was read by Dr Magee This paper was discussed by Drs Lewis J Doshay, New York, Robert S Schwab, Boston, and, in closing Dr Magee

A paper entitled Observations on the Course and Management of Myasthenia Gravis by Drs David Grob and A McGehee Harvey, Baltimore, was read by Dr Grob and was discussed by Drs Roland P Mackay, Chicago, Henry R Viets Boston, N H Wooding, Halifax, Va, and, in closing, Dr Grob

THURSDAY, JUNE 4—AFTERNOON

Dr Sol Levy Medical Lake, Wash, read a paper entitled The Pharmacological Treatment of the Aged Hospitalized in an Institution for the Mentally Ill," which was discussed by Dr Hollis E Clow, White Plains, N Y, and, in closing, Dr Levy

A paper entitled The Distribution, Form, and Extent of Psychiatric Consultation Services in the United States,' by Drs Daniel Blain, Washington D C, and R Finley Gayle Jr, Richmond, Va, was read by Dr Blain, and was discussed by Drs Leo H Bartemeier, Detroit, C N Baganz, Lyons, N J, and, in closing Dr Blain

Dr Karl O Von Hagen Los Angeles, secretary of the section read a letter from Dr George Stevenson, Medical Director of the National Association for Mental Health, Inc with regard to medical education and licensure with respect to the development of psychiatric education in medical schools On motion of Dr Roland P Mackay, Chicago seconded by Dr James P Scanlon, Washington, D C, it was voted unanimously that the secretary be instructed to write a letter to Dr Stevenson thanking him for the informative communication and expressing the desire of the section to receive, preferably just before the next annual meeting any further information regarding activities in the field of mental health, such letter to be read on the program at that time when a majority of the psychiatrists will be present

Dr Forster announced the appointment of Dr Roland P Mackay, Chicago, to work together with Dr Forster and Dr Hans H Reese on a committee to canvass the question of fixed membership of the section and to report at the next meeting

Dr Daniel Blain Washington, D C., reported for the Committee on Licensure

Dr Blain then reported concerning a recent executive order by President Eisenhower concerning security requirements for government employees On motion of Dr Zigmond M Lebensohn, Washington, D C, seconded by Dr T R Robie, East Orange, N J, it was voted unanimously to endorse the resolution presented by Dr Blain

A paper entitled The Alleviation of Emotional Problems in Multiple Sclerosis by Group Psychotherapy, by Drs Robert H Barnes, Ewald W Busse, and Harold Dinken, Denver, was read by Dr Barnes, and was discussed by Drs Wilfred C Hulse and Benjamin Rosenbluth New York

A paper entitled Prognosis in Psychiatry The Results of Psychiatric Treatment," by Drs Kenneth E Appel, J Martin Myers Jr, and Albert E Scheffen, Philadelphia, was read by Dr Appel This paper was discussed by Drs Lothar B Kalinowsky and Noland D C Lewis, New York, Walter Freeman, Washington, D C, and, in closing, Dr Appel

Dr Hardin M Ritchey New Canaan, Conn, read a paper entitled Psychotherapeutic Reeducation, which was discussed by Drs George N Raines and Zigmond M Lebensohn Washington, D C, and, in closing, Dr Ritchey

A paper entitled 'Anxiety and Depressive States Treated with Isonicotinyl Hydrazide, by Drs Harry M Salzer and Max L Lurie, Cincinnati was read by Dr Lurie, and was discussed by Drs Francis J Braceland, Hartford, Conn Frank H Luton, Nashville Tenn, William Shapera, Philadelphia William J Turner, Huntington, N Y, and, in closing, Dr Lurie

SECTION ON OBSTETRICS AND GYNECOLOGY

TUESDAY, JUNE 2—MORNING

The meeting was called to order at 9 o'clock by the vice chairman, Dr R Gordon Douglas, New York

Dr Donald W deCarle, San Francisco, read a paper on Spinal Anesthesia in Cesarean Section A Critical Analysis of Some 1200 Cases with No Maternal Mortality' This paper was discussed by Drs Robert A Cosgrove, Jersey City, N J, Edward C Allen, Boston William F Finn, New York, J Kingsley MacDonald, Charlotte, N C, William Van Auken, Troy, N Y, and Donald W deCarle, San Francisco

Drs Samuel M Dodek, Joseph M Friedman, Peter A Soyster, and Harvey L Marcellus, Washington, D C, presented a paper on The Intrapartum Initiation of Lactation Control with a Single Dose of a Long Acting Androgen (Testosterone Cyclopentylpropionate) This paper was discussed by Drs Robert B Greenblatt, Augusta Ga, S Andrew Silverman, Newark, N J, Maxwell Roland, Forest Hills, N Y, Florence A Smith, Chicago, George Schaefer, Forest Hills N Y, and Samuel M Dodek, Washington, D C

Dr Ira I Kaplan, New York, read a paper on An Experience of 27 Years in the Therapeutic Administration of Low Voltage X-Rays to the Pituitary and Ovaries in the Treatment of Female Sterility,' which was discussed by Drs S

Leon Israel, Philadelphia, M N Runner, Bar Harbor, Maine, E L Spoehr, Detroit, Morris Gottlieb Atlantic City N J, Harold M Sesen, Lynn, Mass, and Ira I Kaplan, New York

Drs Catharine MacFarlane, Philadelphia, Margaret C Sturgis Wynnewood, Pa. and Faith S Fetterman, Philadelphia, presented a paper on "Periodic Examination of the Female Breasts and Pelvic Organs Report of a 15 Year Research on the Control of Cancer" This paper was discussed by Drs Gray H Twombly, New York, Dr Anna S K.

Daniels, New York, Charles S Stevenson, Detroit D G Benjamin, Cleveland, Elisabeth Larsson, Los Angeles, John E Burch, Joplin Mo, Paul W Pendell, French Cameroun, West Africa, Walter B Neubauer, Mt Vernon, N Y, M J Rose, Miami Beach, Fla, and Catherine MacFarlane, Philadelphia

Drs S J Glass and M L Lazarus, Beverly Hills, Calif, presented a paper on 'Improved Fertility and Prevention of Abortion After a Liver-Hormonal Regimen,' which was discussed by Drs Morton S Biskind Westport, Conn, Gordon Rosenblum, Los Angeles, Anna S K Daniels, New York, Maxwell Roland Forest Hills, N Y, John Rao, Kissimmee, Fla, and S J Glass, Beverly Hills, Calif

WEDNESDAY, JUNE 3—MORNING

The meeting was called to order at 9 o'clock by Dr Louis H Douglass, Baltimore, executive Committee Member

The following officers were elected chairman, Dr Bernard J Hanley, Los Angeles, vice chairman, Dr Frederick H Falls, Oak Park, Ill, secretary, Dr D Frank Kaltreider, Baltimore

Dr Edward T Tyler, Los Angeles, read a paper on "Physiological and Clinical Aspects of Conception," which was discussed by Dr A R Abarbanel, Los Angeles, Eric M Matsner, Beverly Hills, Calif, and Edward T Tyler, Los Angeles

Dr Edmund R Novak, Baltimore, read a paper on *Relationships of Endometrial Hyperplasia and Adenocarcinoma of the Fundus*, which was discussed by Drs James A Corscaden, New York, and Edmund R Novak, Baltimore

Dr C P Hodgkinson and R R Margulis, Detroit, presented a paper on *Defibrinogenation Syndrome of Obstetrics Etiology and Management*, which was discussed by Drs Charles L Schneider, Detroit, Edward Zaino, Levittown, N Y, William J Dieckmann, Chicago Charles O Evanson, Elmhurst, Ill, James E Morgan, Cleveland, and C P Hodgkinson, Detroit

Dr William S Kroger, Evanston, Ill, read a paper on 'Psychosomatic Aspects of Obstetrics and Gynecology' This paper was discussed by Drs A J Mandy, Baltimore, H Flanders Dunbar, New York Anna S K Daniels, New York, and William S Kroger, Evanston, Ill

Dr Raymond J Pieri, Syracuse, N Y, read a paper on "The Obstetrical Forceps Its Use and Abuse, which was discussed by Drs John F Fiorino, Everett, Wash, Newlin F Paxson, Philadelphia, and Raymond J Pieri, Syracuse, N Y

THURSDAY, JUNE 4—MORNING

The meeting was called to order at 9 o'clock by the vice chairman, Dr R Gordon Douglas, New York

Dr Arthur Weinberg, Far Rockaway, N Y, read a paper *Radiological Estimation of Pelvic Expansion*, which was discussed by Drs Alan F Guttmacher and Samuel Scadron, New York, and Arthur Weinberg, Far Rockaway, N Y

Drs Edward Tolstoi, William P Given and R Gordon Douglas New York, presented a paper *Management of the Pregnant Diabetic*, which was discussed by Drs Edward G Waters, Jersey City, N J, Frederick M Allen, New York, Irving Werner, Binghamton, N Y, Linton Snaith, Newcastle-on-Tyne, England, and Dr Tolstoi

Dr D Frank Kaltreider, Baltimore, read a paper "The Contracted Outlet," which was discussed by Drs Edward H Dennen, New York, Arthur Weinberg, Far Rockaway, N Y, and D Frank Kaltreider, Baltimore

Drs John R McCain, Atlanta, Ga, Clarence L Anderson, Lakeland, Fla, William M Lester, Atlanta, Ga, and Joseph W Pilkington, St Petersburg, Fla, presented a paper *Prolonged Labor A Clinical Evaluation* This paper was discussed by Drs Duncan E Reid, Boston, Louis M Hellman, New York, John P Gardiner, Toledo, Ohio, Morris Gottlieb, Atlantic City, N J, Arthur Weinberg, Far Rockaway, N Y, and John R McCain, Atlanta, Ga

Dr Elisabeth Larsson, Los Angeles, read a paper "Elective Appendectomies at the Time of Caesarean Sections," which was discussed by Drs Nicholson J Eastman, Baltimore, Frank O Wood and G Lawrence Austin Jr, Hartford, Conn, Bernard J Hanley, Los Angeles, Edward G Waters, Jersey City, N J, Anna S K Daniels, New York, Ernest F Purcell, Trenton, N J, and Elisabeth Larsson, Los Angeles

SECTION ON OPHTHALMOLOGY

TUESDAY JUNE 2—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr Francis H Adler, Philadelphia

Dr Adler read his Chairman's Address

Drs Peter C Kronfeld, Chicago, and Dohrmann K Pischel, San Francisco, presented a paper *The Scleral Resection Operation for Retinal Detachment An Evaluation of the Results*, which was discussed by Drs Charles L Schepens, Boston, and Derrick Vail, Chicago

Dr Angelos N Dellaporta, Buffalo, read a paper on "A Comparison of Scleral Resection and Scleral Folding in the Experimental Shortening of the Eye This paper was discussed by Drs Kenneth C Swan, Portland, Ore, A A Knapp, New York, Charles L Schepens, Boston, and Harvey E Thorpe, Pittsburgh

Drs Isadore J Eisenberg, Irving H Leopold, and David M Sklaroff, Philadelphia, presented a paper on "The Use of P³ Diagnostically in Ocular Pathology," which was discussed by Drs Edwin B Dunphy, Boston, and Murray A Last, New York

Dr David G Cogan, Boston, read a paper on "Ocular Dysmetria, Flutter-Like Oscillations of the Eyes, and Opsoclonus," which was discussed by Dr Frank B Walsh, Baltimore

Dr Daniel G Vaughan Jr, San Jose, Calif, read a paper on *Xerophthalmia* This paper was discussed by Drs Arthur M Yudkin, New Haven, Conn, Karl W Ascher, Cincinnati William J Holmes, Honolulu, and Frederick H Verhoeff, Boston

Drs Byron H Demorest and Benjamin Milder, St Louis, presented a paper on *Dacryocystography The Normal Lacrimal Tract*, which was discussed by Dr J Vernal Cassidy, South Bend, Ind

WEDNESDAY, JUNE 3—MORNING

The following officers were elected chairman, Dr Trygve Gundersen, Boston, vice chairman, Dr Dohrmann K Pischel, San Francisco secretary, Dr Harold G Scheie, Baltimore, delegate, Dr William L Benedict, Rochester, Minn, and representative to the Scientific Exhibit, Dr William F Hughes Jr, Chicago

The following committee appointments were made *American Committee on Optics and Visual Physiology (joint)* Dr Lawrence T Post reappointed, Committee on American

Board of Ophthalmology Dr John S McGavie, Committee on National Museum of Ophthalmic Pathology Dr Jonas S Friedenwald reappointed, Committee on Scientific Exhibit Dr William F Hughes Jr, chairman, and Dr Donald J Lyle and Dr Walter H Fink reappointed, Committee on Museum of Ophthalmic History Dr Burton Chance, chairman, Dr Hans Barkan reappointed, and Dr Frederick C Cordes appointed, Committee to National Conference on Medical Nomenclature (joint) Dr Conrad Berens reappointed, Committee on American Orthoptic Council (joint) Dr Hermann M Burian reappointed for three years, Committee on Industrial Ophthalmology (joint) Dr Albert D Ruedemann, chairman, Dr Hedwig S Kuhn and Dr Glenn Harrison, all reappointed Representatives of Section to American College of Surgeons for the term 1953-1956, Dr James N Greear Jr, Reno, Nev., Dr Harold H Joy, Syracuse, N Y., Dr Alston Callahan, Birmingham, Ala., and for the term 1954-1957, Dr M Hayward Post St Louis Dr C Dwight Townes, Louisville, Ky., Dr Ralph O Rychener Memphis, Tenn., Committee for Study of Retrolental Fibroplasia (joint) Dr Algernon B Reese reappointed, Committee on International Congress of Ophthalmology, 1954 Dr M Hayward Post reappointed

The following proposed substitutes for items 1 and 2 of the Provisions for Awarding the Knapp Medal were voted on and carried unanimously

1 The granting of the Knapp Medal to the author or authors of the best contribution presented at an annual meeting of the Section and worthy of this honor The eligible contributions shall include voluntary contributions, the chairman's address, papers or addresses presented by invitation, discussions of papers and reports of committees

The committee of three for the award of the Knapp Medal must report its decision not later than the second annual section meeting after its election If the committee unanimously selects a paper or other contribution for the award and this selection is approved by vote of the executive committee, the Knapp Medal is thereby awarded for the year in question If possible the medal is then to be presented by the chairman of the Committee for the Award of the Knapp Medal to the author or authors of the approved contribution

2 If the Committee for Award of the Knapp Medal is unable to make a selection unanimously, or their unanimous selection is not approved by vote of the executive committee, no award of the medal for the year in question shall be made at the annual meeting at which the committee reports If the most recent Committee on the Award of the Knapp Medal and the executive committee unanimously decide that subsequent events have demonstrated that a contribution made two or more years previously deserved the Knapp Medal it may be awarded to the author or authors with permission of the Knapp Committee of the year in question, provided that the medal has not already been awarded for this previous year If possible, when thus awarded, the medal is to be presented by the chairman of the section

It was voted that no action be taken on the report of the Committee on the International Congress of Ophthalmology that the committee be continued and that the committee be enlarged at the discretion of the section chairman It was voted that the report of the Committee on the International Congress of Ophthalmology be published, although not accepted by the section

Dr Karl W Ascher was awarded the Knapp Medal for his paper entitled, "Aqueous Veins, Their Status 11 Years After Their Detection

It was voted that Dr Derrick Vail, Chicago, be elected chairman of the Committee on the Award of the Knapp Medal, together with Dr Frederick H Verhoeff, Boston, and Dr Jonas Friedenwald, Baltimore

The Prize in Ophthalmology was given to Dr Parker Heath, Boston

It was voted that the section go on record approving the action taken by the Board of Trustees of the American Medical Association, opposing H R 2980

Dr A Franceschetti, Geneva Switzerland, read an address as the invited foreign guest of the Section

Drs Phillips Thygeson, San Jose, Calif., Michael J Hogan and Samuel J Kimura, San Francisco, presented a paper on Uveitis in Children, which was discussed by Drs Parker Heath and Charles L Schepens, Boston, A Franceschetti, Geneva, Switzerland, F A Davis, Madison, Wis., and Louis J Girard, New York

Dr John R Fair, Washington, D C., read a paper on Uveitis A Military Problem This paper was discussed by Drs Helenor C Wilder Washington, D C., Derrick Vail, Chicago, and A A Knapp, New York

Dr Bernard C Gettes, Philadelphia, read a paper on "A Clinical Report of the Use of Three New Cycloplegic Drugs" which was discussed by Drs Irving H Leopold and I S Tassman Philadelphia

THURSDAY, JUNE 4—MORNING

Dr Henry Minsky, New York, read a paper on 'Very Early Vascular Signs in the Retina in Relation to Elevated Diastolic Blood Pressure' This paper was discussed by Drs Z William Colson Lawrence, Mass., Arthur J Bedell, Albany N Y., Frank Vesey Schenectady, N Y., and Frederick A Theodore and Arthur Linksz, New York

Drs Henry E Schlegel Jr and Kenneth C Swan, Portland, Ore presented a paper on 'Dorsacaine for Rapid Corneal Anesthesia' which was discussed by Drs Harold G Scheie, Philadelphia, and Kenneth C Swan, Portland, Ore

Drs Warren S Reese and Turgut N Hamdi, Philadelphia presented a paper on 'A Preliminary Report on the Ridley Operation,' which was discussed by Drs John H Dunnington New York, Georgiana Theobald, Oak Park, Ill., Harvey E Thorpe, Pittsburgh, Derrick Vail, Chicago, and Warren S Reese, Philadelphia

Drs Elizabeth F Constantine and John M McLean, New York presented a paper on 'Contact Lenses in Aphakia' This paper was discussed by Drs Conrad Berens, Arthur Linksz, and John M McLean, New York

Drs Theodore F Schlaegel Jr and Louis N Hungerford Indianapolis, presented a paper on Isoniazid in Tuberculous Uveitis, which was discussed by Dr Merrill J King Brookline, Mass

Dr C William Weissner, Pittsburgh read a paper on 'Fibrin Film in the Treatment of Corneal Diseases' which was discussed by Drs Derrick Vail, Chicago, I S Tassman Philadelphia Irvin Levy, Trenton N J and Harvey E Thorpe, Pittsburgh

Dr Richard C Troutman New York, presented a paper on Experiences with a Magnetic Implant for Cosmetic Improvement of the Enucleation Procedure Over a Five Year Period This paper was discussed by Dr Norman L. Cutler, Wilmington, Del

SECTION ON ORTHOPEDIC SURGERY

TUESDAY, JUNE 2—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr H Relton McCarroll, St Louis

Dr Tom Outland, Harrisburg, Pa, read a paper on "The Early Roentgenographic Signs of Perthes' Disease," which was discussed by Drs Charles W Goff, Hartford, Conn, M Beckett Howorth, New York, and Maurice M Pike, Hartford, Conn

Drs Walter S Hunt Jr, and Hugh A Thompson, Raleigh, N C, presented a paper on "Panastragalar Arthrodesis" This paper was discussed by Drs Robert L Patterson, New York, Robert J Joplin, Boston, and J Albert Key, St Louis

Drs J Albert Key, Fred C Reynolds and James O Lottes, St Louis, presented a paper on 'The Treatment of Infection After Insertion of an Intramedullary Nail,' which was discussed by Drs Dana M Street, Memphis, Tenn, and David M Bosworth New York

Drs August W Spittler, Joseph W Batch and Ben A Rutledge, Washington, D C, presented a paper on "The Effects of Extensive Radiation on the Healing of Fresh Fractures," which was discussed by Drs Edgar M Bick, New York, A R Shands Jr, Wilmington, Del, and J Albert Key, St Louis

Dr Lenox D Baker, Durham, N C, read a paper on "The Triceps Surae Syndrome in Cerebral Palsy," which was discussed by Drs Charles N Pease, Chicago, and Frederick L Liebolt, New York

Drs Herbert E Pedersen and A Jackson Day, Detroit, presented a paper on Dupuytren's Contracture of the Foot" which was discussed by Drs Emanuel B Kaplan and Edward M Winant, New York, and J Vernon Luck, Los Angeles

WEDNESDAY, JUNE 3—MORNING

The following officers were elected chairman, Dr Charles N Pease, Chicago, vice chairman, Dr Jesse T Nicholson, Philadelphia, secretary, Dr Frederick R Thompson, New York, representative to the Scientific Exhibit, Dr J Vernon Luck, Los Angeles, representatives to American Board of Orthopedic Surgery, Donald E King, San Francisco, and Donald B Slocum, Eugene, Ore

The report of the delegate to the House of Delegates was presented by Dr Edward L Compere, Chicago

Dr Joseph D Godfrey and William D Dugan, Buffalo, presented a paper on Early Management of the Injured Hand," which was discussed by Drs J William Littler, New York, and George O Eaton, Baltimore

Dr Paul C Colonna, Philadelphia, read a paper on 'Spondylolisthesis,' which was discussed by Drs Frederic C Bost, San Francisco and John R Norcross, Chicago

Dr H Relton McCarroll, St Louis, read his Chairman's Address 'Has a Solution for the Unsolved Fracture Been Found?"

Drs Milton S Thompson, Fort Sam Houston, Texas, presented a paper on 'Problems in Management of Fractures of the Shaft of the Tibia' This paper was discussed by Drs John S Thieme, Norfolk, Va, Frank E Stinchfield, New York, Meyer Levin, Detroit, Lemuel D Smith, Milwaukee, and Leroy O Travis, Fort Sam Houston, Texas

Dr Bruce J Brewer, Milwaukee, read a paper on "Flake Fracture of the Astragalus, which was discussed by Drs

Nicholas J Giannestra, Cincinnati, J Albert Key, St Louis, Jesse T Nicholson, Philadelphia, and William T Green, Boston

THURSDAY, JUNE 4—MORNING

A panel discussion, "Are Bone Sarcomas Curable?" was participated in by Dr Bradley L Coley, New York, Moderator, C Howard Hatcher, Chicago, Murray M Copeland, Washington, D C, Lauren V Ackerman, St Louis, J Vernon Luck, Los Angeles, and Norman L Higinbotham, New York

The meeting adjourned at 12 40 o'clock

SECTION ON PATHOLOGY AND PHYSIOLOGY

TUESDAY, JUNE 2—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr Lall G Montgomery, Muncie, Ind

Dr Homer W Smith, New York, read a paper on "The Comparative Physiology of the Kidney," which was discussed by Dr Robert F Pitts, New York

Dr William S Hoffman, Chicago, read a paper on 'Metabolism of Uric Acid and Its Relation to Gout,' which was discussed by Drs Alexander B Gutman, New York, Max Gutmann, Brooklyn, and Homer W Smith, New York

Drs Frank W Hartman, George Magnum, A R Kelley, and Gerald A LoGrippe, Detroit, presented a paper on 'Chemical Inactivation of Viruses in Blood and Plasma' This paper was discussed by Dr Max Gutmann, Brooklyn, and, in closing Dr Hartman

Dr Israel Davidsohn, Chicago, read a paper on "Immunohematologic Studies in Hemolytic Anemia," which was discussed by Dr William Dameshek, Boston, and, in closing, Dr Davidsohn

Drs K M Brinkhous, R D Langdell, G D Penick, J B Graham and R H Wagner, Chapel Hill, N C, presented a paper on 'Newer Approaches to the Study of Hemophilia and Hemophilia Like Hemorrhagic States' This paper was discussed by Drs Matthew H Block, Chicago, Max M Strumia, Bryn Mawr, Pa, William Dameshek, Boston, Israel Davidsohn, Chicago, and, in closing, Dr Brinkhous

Dr Lysle H Peterson, Philadelphia, read a paper on 'Factors Determining Arterial Blood Pressure,' which was discussed by Dr J Earl Thomas, Philadelphia, and, in closing, Dr Peterson

Drs Charles F Geschikter and Antonette Popovici, Washington, D C presented a paper on 'Post Emphysematous Phrenic Hypertension An Analysis of 75 Cases of Chronic Asthma Complicated by Emphysema' This paper was discussed by Drs Albert H Andrews Jr, Chicago, Antonette Popovici, Washington, D C, and, in closing, Dr Geschikter

WEDNESDAY JUNE 3—MORNING

The following officers were elected chairman, Dr J Earl Thomas, Philadelphia, vice chairman, Dr Samuel Levinson, Chicago, secretary, Dr Edwin F Hirsch, Chicago, delegate, Dr Lall G Montgomery, Muncie, Ind, alternate delegate, Dr H J Corper Denver, representative to Scientific Exhibit, Frank B Queen, Portland, Ore

Dr Lall G Montgomery, Muncie, Ind, read his Chairman's Address on 'Medical Technology and Its Relation to Physiology and Pathology"

Dr M I Gregersen, New York, presented a paper on "Blood Volume Evaluation of Methods of Interpretation of Results"

Dr S E Gould, Eloise, Mich, presented a paper on "Control of Trichinosis by Irradiation of Pork," which was discussed by Drs Henry J Gomborg and Frank H Bethell, Ann Arbor, Mich, and Vernon B Link, Atlanta, Ga

A paper on 'Diffuse Interstitial Fibrosis of the Lungs' by Drs Alfred Golden and Theodore T Bronk, Buffalo, was presented by Dr Golden, and was discussed by Drs Maurice N Richter, New York, and Milton G Bohrod, Rochester, N Y

A paper on 'Atypical Adenomas of the Thyroid' by Drs John B Hazard and Rex E Kenyon, Cleveland was presented by Dr Hazard

A paper on Distribution of Thyroid Cancer in Thyroid Glands with Discussion of Clinical Significance in Treatment by Drs William O Russell, R Lee Clark Jr, and Candido de Oliveira, Houston Texas, was presented by Dr Russell, and was discussed by Dr W A D Anderson, Milwaukee Wis

A paper on Histologic Classification and Prognosis of Hydatidiform Moles" by Drs Hugh G Grady, Gaithersburg Md, and Charles I Bryans Jr, Augusta, Ga, was presented by Dr Grady This paper was discussed by Dr George Milles, Chicago

Dr I J Pincus, Philadelphia, presented a paper on "A Hyperglycemic Agent in Pancreatic Extracts A Possible Factor in Certain Types of Diabetes" The prepared discussion of Dr Rachmiel Levine, Chicago, was read by Dr Edwin F Hirsch, Chicago

THURSDAY, JUNE 4—MORNING

A joint meeting was held with the Section on Gastroenterology and Proctology The proceedings are reported in the minutes of that section

SECTION ON PEDIATRICS

TUESDAY, JUNE 2—AFTERNOON

Joint Meeting with Section on Radiology

The meeting was called to order at 2 o'clock by the chairman of the Section on Radiology, Dr Paul C Hodges, Chicago

Dr George Cooper Jr, McLemore Birdsong and Randolph G Bradshaw, Charlottesville, Va, presented a paper on Emergencies in the New Born This paper was discussed by Drs Fred H Wilke, New York, and Paul C Hodges, Chicago

Drs John F Holt and Howard B Latourette, Ann Arbor, Mich, presented a paper on Physiological Bowing of the Legs in Young Children, which was discussed by Dr Kenneth D A Allen, Denver

Drs J A Campbell and David C Gastineau, Indianapolis presented a paper on Specificity of Roentgen Findings in Suppurative Pneumonia of Infants and Children, which was discussed by Dr Fred Jenner Hodges, Ann Arbor, Mich

Drs Raymond G McDonald and William A Evans Jr, Detroit, presented a paper on "Hirschsprungs Disease The Roentgen Diagnosis in Infants and Young Children" This paper was discussed by Drs George P Keefer, Philadelphia, and Joseph Golomb, Bronx, N Y

Drs John P Caffey and Ruth C Harris, New York presented a paper on Cholecystography During the First Months of Life," which was discussed by Dr Frederick N Silverman, Cincinnati

Dr Edward B D Neuhauser, Boston, read a paper on Lesions of the Esophagus in Infancy" This paper was discussed by Drs William H Shehadi, New York, and Woodruff L Crawford, Rockford, Ill

WEDNESDAY, JUNE 3—AFTERNOON

The following officers were elected chairman, Dr Oliver L Stringfield, Stamford, Conn, vice chairman, Dr William W Belford San Diego, Calif secretary, Dr Wyman C C Cole, Detroit, representative to Scientific Exhibit, F Thomas Mitchell, Memphis, Tenn, custodian of the Jacobi Fund, Hugh L Dwyer, Kansas City, Mo, delegate, Woodruff L Crawford, Rockford Ill, alternate delegate, Walter B Stewart, Atlantic City, N J

Dr Eugene T McEnery, Chicago, read his Chairman's Address

Symposium on Prevention of Needless Neonatal Deaths

Dr Herman N Bundesen, Chicago, read a paper entitled "From the Viewpoint of the Public Health Officer," which was discussed by Drs Joseph G Molner, Detroit, and Samuel M Wishik Pittsburgh

Dr Charles U Letourneau, Chicago, read a paper entitled "From the Viewpoint of the Hospital Administrator" This paper was discussed by Drs Anthony J J Rourke, New York, and Richard D Mills, Boston

Dr Stewart H Clifford, Brookline, Mass, read a paper entitled "From the Viewpoint of the Pediatrician"

Dr Carl P Huber, Indianapolis, read a paper entitled "From the Viewpoint of the Obstetrician," which was discussed by Drs Carl Goldmark Jr, New York, Nicholson J Eastman, Baltimore, and H R Litchfield, Brooklyn

THURSDAY, JUNE 4—AFTERNOON

Joint Meeting with Section on Physical Medicine and Rehabilitation and Section on Preventive and Industrial Medicine and Public Health

Dr Vlado A Getting, Boston, chairman of the Section on Preventive and Industrial Medicine and Public Health, read his Chairman's Address

Dr Joseph A Bell, Bethesda, Md, read a paper on Epidemiologic Aspects of the Uses of Gamma Globulin in Poliomyelitis"

Dr W H Aufranc Washington, D C, read a paper on "National Policies Relative to the Distribution of Gamma Globulin"

Dr Albert B Sabin, Cincinnati, read a paper on "Present Status and Future Possibilities of Vaccine for the Control of Poliomyelitis"

Dr Clifford G Grulee Jr, New Orleans, read a paper on "Differential Diagnosis of Poliomyelitis"

Dr Kristian G Hansson, New York, Chairman of the Section on Physical Medicine and Rehabilitation, assumed the Chair

Dr Alex J Steigman, Louisville, Ky., read a paper on "Treatment of Acute Phase of Poliomyelitis"

Dr Jessie Wright, Pittsburgh, read a paper on 'The Early Treatment of Poliomyelitis' This paper was discussed by Dr Duane A Schram, Gonzales, Texas

Dr Robert L Bennett Jr, Warm Springs, Ga, read a paper on 'Methods of Preventing Deformity and Restoring Effective Muscle Activity' This paper was discussed by Dr Morton Hoberman, New York

SECTION ON PHYSICAL MEDICINE AND REHABILITATION

TUESDAY, JUNE 2—MORNING

Panel on Geriatrics

The meeting was called to order at 9 05 o'clock by the chairman, Dr Kristian G Hansson, New York

The Chairman's Address, 'Body Mechanics in Geriatrics,' was presented by Dr Kristian G Hansson, New York

A paper entitled 'Rehabilitation in General in Geriatrics' by Dr Edward J Lorenze, White Plains, N Y, was presented

A paper entitled 'Physical Medicine and Rehabilitation for the Elderly Neurologic Patient' by Dr Arthur L Watkins, Boston, was presented

A paper entitled 'Peripheral Vascular Disease in Geriatrics' by Dr Charles S Wise, Washington, D C, was presented

A paper entitled 'Medical Aspects of Physical Treatment in Geriatrics' by Dr Harold Dinken, Denver, was presented

General discussion from the floor followed, with Dr Kristian G Hansson New York, acting as moderator

WEDNESDAY, JUNE 3—MORNING

The following officers were elected chairman, Dr Walter Solomon, Cleveland, vice chairman, Dr William Schmidt, Philadelphia, secretary, Dr Walter J Zeiter, Cleveland, delegate, Dr Frank H Krusen, Rochester, Minn, alternate delegate, Dr Arthur L Watkins, Boston

Panel on Arthritis

With Dr Frank H Krusen Rochester, Minn, acting as moderator, the following papers were presented

'Classification of Arthritis' by Dr Robert M Stecher, Cleveland

'Rehabilitation in Arthritis' by Dr Donald L Rose, Kansas City Kan,

'Surgery in the Rehabilitation of the Arthritic' by Dr Lee Ramsay Straub, New York, and

'Medication for Arthritis' by Dr Richard H Freyberg, New York

Discussion from the floor followed

THURSDAY, JUNE 4—AFTERNOON

A joint meeting was held with the Section on Pediatrics and the Section on Preventive and Industrial Medicine and Public Health The proceedings are reported in the minutes of the Section on Pediatrics

SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

TUESDAY, JUNE 2—MORNING

The meeting was called to order at 9 05 o'clock by the chairman, Dr Vlado A Getting, Boston

Panel on Civil Defense

Dr Kenneth C Charron, Ottawa, Canada, presented a paper on 'Health Programs in Civil Defense'

A paper on 'Emergency Public Health and Sanitation' by Drs Robert H Flinn and E K Erickson, Washington, D C, was given by Dr Flinn

Dr John B Alsever, Washington, D C, presented a paper on 'Blood Derivatives and Plasma Volume Expanders'

Dr James H Defandorf, Washington, D C, presented a paper on 'Civil Defense in Chemical Warfare'

Dr John J Phair, Cincinnati, presented a paper on 'Civil Defense for Biological Warfare'

Dr M N Newquist, New York, N Y, presented a paper on 'Civil Defense in Industry'

Dr Carlisle S Lentz, Washington, D C, presented a paper on 'Improvised Hospitals'

Dr Carl A Wilsbach, Cincinnati presented a paper on 'Medical Civil Defense in Target Cities'

Dr Frank L Cole, San Francisco, California, presented a paper on 'State Civil Defense Programs'

A general discussion period was conducted among the members of the audience and the participants in the program.

WEDNESDAY, JUNE 3—MORNING

The following officers were elected chairman, Jean S Felfon, Oak Ridge, Tenn, vice chairman, John J Phair, Cincinnati, secretary, Frank Princi, Cincinnati, nominating committee, Carl Neupert Madison, Wis, James Sierner, Rochester N Y, and Adolph Kammer, Pittsburgh

Dr James P Hughes, Cincinnati read a paper on 'Industrial Medical Service by Private Practitioners' This paper was discussed by Drs Glen S Everts, Philadelphia Charles F Shook, Toledo, Ohio Edward M Gunn, Hartsville, S C, and John J Snyder, Harrisburg, Pa

Dr R G Bell, Ontario, Canada, read a paper on 'Clinical Prevention of Alcoholism by the Industrial Health Department, which was discussed by Drs Walter B Quisenberry, Honolulu, Charles Franco, New York, and W D Schmidt, Westbury, N Y

Dr Charles E Dutchess, New York, read a paper on 'Criteria for Retirement in Industry'

Dr E M Kline, Cleveland, read a paper on 'Role of the Physician in the Employment of the Cardiac Worker,' which was discussed by Drs C J Bogucki Detroit, and John J Thorpe and Adelaide Romaine, New York

Dr Raymond R Suskind, Cincinnati, read a paper on 'An Industrial and Laboratory Evaluation of the Silicone Protective Cream' This paper was discussed by Drs Herbert Mescon, Boston Roy Milne Seideman, Hartford, Conn, Raymond Murray, Great Neck, N Y, Arpad G Gerard, Woodbridge, N J, and Edmund Finnerty, Boston

THURSDAY, JUNE 4—AFTERNOON

A joint meeting was held with the Section on Pediatrics and the Section on Physical Medicine and Rehabilitation. The proceedings are reported in the minutes of the Section on Pediatrics.

SECTION ON RADIOLOGY

TUESDAY, JUNE 2—AFTERNOON

A joint meeting was held with the Section on Pediatrics. The proceedings are reported in the minutes of the Section on Pediatrics.

WEDNESDAY, JUNE 3—AFTERNOON

The following officers were elected chairman, Kenneth D A Allen, Denver, vice chairman, Laurence L Robbins, Boston, representative to Scientific Exhibit, Richard H Chamberlain, Philadelphia.

Dr Paul C Hodges, Chicago, read his Chairman's Address, entitled "Roentgen Examination of the Colon."

Drs Arno W Sommer and W A Goodrich, Temple, Texas, presented a paper on "Gastric Diverticula."

Dr Samuel S Richman, Richmond, Va., read a paper on "Roentgen Aspects of Some Benign and Malignant Ulcerations of the Stomach."

The papers of Drs Sommer and Goodrich and Dr Richman were discussed by Drs Ross Golden, New York, and Theodore S West, Port Chester, N Y.

Drs Paul C Swenson and Robert B Jeffrey, Philadelphia, presented a paper on "The Limitations of the Diagnostic Procedures of the Roentgenologic Examination of the Gastrointestinal Tract," which was discussed by Dr Kenneth E Fry, Philadelphia.

Drs Cesare Gianturco and George A Miller, Urbana, Ill., presented a paper on "Routine Search for Colonic Polyps by High Voltage Roentgenography." This paper was discussed by Drs Charles H Drenckhahn, Urbana, Ill., Kenneth D A Allen, Denver, Ross Golden, New York, A W Martin Marino, Brooklyn, and Philip J Hodes, Philadelphia.

Drs Ross Golden and Pablo Morales, New York, presented a paper on "X-Ray Examination in Organic Disease of the Small Intestine," which was discussed by Dr Philip J Hodes, Philadelphia.

THURSDAY, JUNE 4—AFTERNOON

Drs John G Trump and Hugh F Hare, Boston, presented a paper on "Observations on Rotational Therapy with Two Million Volt Roentgen Rays," which was discussed by Dr Morton M Kligerman, New York.

Drs Roger A Harvey, Lewis L Haas and Seymour S Langer, Chicago, presented a paper on "The Radiation Management of Otherwise Hopeless Thoracic Neoplasms." This paper was discussed by Drs Theodore P Eberhard, Philadelphia, and Maurice Lenz, New York.

Dr Carl B Braestrup, New York, read a paper on "Design of Radioisotope Laboratories for General Hospitals."

Dr Edith H Qumby, New York, read a paper on "The Radioisotope Program in the General Hospital."

The papers of Dr Braestrup and Dr Qumby were discussed by Drs Sergei Feitelberg, New York, and Theodore P Eberhard, Philadelphia.

Drs R W Emerick, L E Holly, A H Joistad, and K E Corrigan, Muskegon, Mich., presented a paper on "Diagnostic

Use of Radioisotopes in a General Hospital." Dr Carleton B Peirce, Montreal, Canada, read a paper on "Therapeutic Value of Radioisotopes in a General Hospital." These two papers were discussed by Drs Hymer L Friedell, Cleveland, Bernard Roswit, New York, W Edward Chamberlain, Philadelphia, K E Corrigan, Muskegon, Mich., and Sergei Feitelberg, New York.

SECTION ON SURGERY, GENERAL AND ABDOMINAL

TUESDAY, JUNE 2—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman Dr I Ridgeway Trimble, Baltimore.

A paper by Drs R Russell Best, John A Rasmussen and Carlyle E Wilson, Omaha, on "The Management of Remaining Common Duct Stones by Various Solvents and the Biliary Flush Regimen," was presented. This paper was discussed by Drs Waltman Walters, Rochester, Minn., and Frank Glenn, New York.

Dr Frank F Allbritten Jr, Philadelphia, read a paper on "Chronic Pancreatitis and Associated Stenosis of the Common Bile Duct Treatment by Roux Y Choledochojunostomy," which was discussed by Drs John H Mulholland, New York, and Jonathan E Rhoads, Philadelphia.

Dr Ralph F Bowers, Memphis, Tenn., read a paper on "Bilateral Adrenalectomy for Severe Hypertension." This paper was discussed by Drs Harold A Zintel, and William A Jeffers, Philadelphia, and Frederick M Allen, New York.

Dr John D Stewart, Buffalo, read a paper on "Surgery of the Elderly," which was discussed by Drs Guy Alfano, Buffalo, Louis Carp, New York, and Warren H Cole, Chicago.

Dr Kenneth W Warren, Boston, read a paper on "Pancreatic Consideration in Gastric Surgery," which was discussed by Drs Frank H Lahey, Boston, and Robert J Coffey, Washington D C.

Drs J W Kirklín, J M Waugh, J H Grindlay, C R Openshaw, and Edgar V Allen, Rochester, Minn., presented a paper on "The Surgical Treatment of Arteriosclerotic Aneurysms of the Abdominal Aorta." This paper was discussed by Drs Arthur H Blakemore, New York, Geza de Takats, Chicago, Henry Bahnson, Baltimore, and Michael E De Bakey, Houston, Texas.

WEDNESDAY, JUNE 3—AFTERNOON

Dr I Ridgeway Trimble, Baltimore, read his Chairman's Address.

Dr Julian Johnson, Philadelphia, read a paper on "The Treatment of Cardiac Arrest and Ventricular Fibrillation," which was discussed by Drs Claude S Beck, Cleveland, E M Papper, New York, and Julian Johnson, Philadelphia.

Dr Robert E Gross, Boston, read a paper on "The Treatment of Interauricular Septal Defects." This paper was discussed by Drs Henry Swan, Denver, George H Humphreys II, New York, Charles P Bailey, Philadelphia, and Robert E Gross, Boston.

Dr F D Dodrill, Detroit, read a paper on "Some Experiences with the Mechanical Heart in Human Surgery," which was discussed by Drs John H Gibbon and Charles P Bailey, Philadelphia.

Dr Frank L Meleney and Balbina A Johnson, New York, read a paper on "The Rational Use of Antibiotic Therapy in the Control of Surgical Infections," which was discussed by Dr William R Sandusky, Charlottesville, Va.

The following officers were elected chairman, Dr Emile F Holman, San Francisco, vice chairman, Dr Robert M Zollinger, Columbus Ohio, secretary, Dr Walter G Maddock, Chicago delegate, Dr Grover C Penberthy, Detroit, and representative to Scientific Exhibit, Dr John H Mulholland, New York

THURSDAY, JUNE 4—AFTERNOON

Dr Orvar Swenson, Boston, read a paper on 'The Modern Treatment of Hirschsprung's Disease,' which was discussed by Drs C Everett Koop, Philadelphia, and Robert B Hiatt, New York

Dr C Paul Boyan, New York, read a paper on "Hypotensive Anesthesia for Radical Pelvic and Abdominal Surgery" This paper was discussed by Drs Alexander Brunschwig and Charles L Burstein, New York

Drs E H Ellison and Robert M Zollinger, Columbus, Ohio, presented a paper on 'Nutrition Following Gastric Operations' This paper was discussed by Drs Samuel A Levinson, Chicago, and William E Abbott, Cleveland

A paper on 'The Low Sodium Syndrome in Surgical Patients Deficiency, Maldistribution or Dilution?' was presented by Drs Francis D Moore, Graham Wilson, Laura Brooks, and J Allan Myrden, Boston, and was discussed by Drs H T Randall, New York, James D Hardy, Memphis, Tenn, Charles Fox, New York, and Francis D Moore, Boston

Dr Edgar J Poth, Galveston, Texas, read a paper on 'The Application of Intestinal Antisepsis in Surgery,' which was discussed by Drs Warfield M Firor, Baltimore, and Robert A Scarborough, San Francisco

Dr Clarence Dennis, Pelham Manor, N Y, read a paper on 'Current Procedure in the Management of Small Bowel Obstruction' This paper was discussed by Drs Leland S McKittrick, Brookline, Mass, Walter G Maddock, Chicago, and John Devine Jr, Lynchburg, Va

SECTION ON UROLOGY

TUESDAY, JUNE 2—MORNING

The meeting was called to order at 9 15 o'clock by the chairman, Dr Earl E Ewert, Boston

A paper entitled 'The Management of Kidney Injuries' by Drs Harry M Spence, Sidney S Baird, and Elgin W Ware, Dallas, Texas, was presented

A paper entitled 'Injuries of the Ureter' by Drs Hamilton W McKay, H Haynes Baird and Homer R Justis, Charlotte, N C, was given

Dr George C Prather, Brookline, Mass, presented a paper entitled 'Injuries of the Bladder'

'The Management of Urethral Injuries,' a paper by Dr William J Baker, Chicago, was presented

Discussion on the foregoing papers was presented by Drs Moses Swick, New York, G Franklin Farman, Whittier, Calif and Charles S Levy, Baltimore

The first paper in a symposium on male fertility was presented by Dr John MacLeod, New York, entitled "The Male Factors in Infertility"

Dr Vincent J O'Connor, Chicago, presented a paper on "Mechanical Aspects and Surgical Correction of Male Sterility"

A paper entitled "Endocrinological Aspects of Male Infertility" by Dr Peter M F Bishop, London, England, was given, and was discussed by Drs Robert S Hotchkiss, New York, and Norris J Heckel, Chicago

WEDNESDAY, JUNE 3—MORNING

The following officers were elected chairman, Dr Rex E Van Duzen, Dallas, Texas, vice chairman, Dr Charles C Higgins, Cleveland, secretary, Dr Rubin H Flocks, Iowa City, delegate, Dr Jay J Crane, Los Angeles, alternate, Dr Earl E Ewert, Boston, and chairman of exhibits, Roger W Barnes, Los Angeles

Dr Earl E Ewert, Boston, read his Chairman's Address on 'The Effect of Supravoltage Rotational X Ray Therapy on Extensive Carcinoma of the Bladder'

Dr Charles C Higgins, Cleveland, read a paper on "The Clinical Significance of Hematuria," which was discussed by Dr Laurence F Greene, Rochester, Minn

Symposium on the Neurogenic Bladder

Drs Charles N Duncan and Rex E Van Duzen, Dallas, Texas, presented a paper on 'Anatomy and Physiology of the Urinary Bladder'

Drs Reed M Nesbit and William C Baum, Ann Arbor, Mich, presented a paper on 'Cystometry, the Reflex Hammer of Bladder Activity'

Dr Tracy O Powell, Los Angeles, read a paper on "The Clinical Management of Urinary Retention in Children"

Dr Gershom J Thompson, Rochester, Minn, read a paper on 'Practical Points in the Management of the Cord Bladder'

The papers presented in the symposium were discussed by Drs Lowrain E McCrea, Philadelphia, James C Sargent, Milwaukee, William P Herbst, Washington, D C, Donald C Malcolm, Long Beach, Calif, Rex E Van Duzen, Dallas, Texas, and Tracy O Powell, Los Angeles

THURSDAY, JUNE 4—MORNING

Dr Dean Parker, Seattle, read a paper on 'The Treatment of Urinary Tract Infections'

Dr Russell B Carson, Fort Lauderdale, Fla, read a paper on 'The Management of Vesicourethral Dysfunction in Women'

Dr Harold A O'Brien, Dallas, Texas, read a paper on 'The Management of Bladder Irritation in the Female'

The above papers were discussed by Drs Ormund S Culp, Rochester, Minn, Harry M Spence, Dallas, Texas, and, in closing, Drs Parker, Carson and O'Brien

Drs John K Lattimer and Archie L Dean, New York, presented a paper on 'Radical Prostatectomy'

Drs J C Kimbrough and Ferris E Cook, Washington, D C, presented a paper on 'Carcinoma of the Testicle'

The above two papers were discussed by Drs John A Taylor, New York, Roger W Barnes, Los Angeles, Elmer Belt, Los Angeles, and, in closing, Dr Lattimer and Dr Kimbrough

Drs Fred Z Havens Sr, and T J Litzow, Rochester, Minn., presented a paper on 'Treatment of Hypospadias,' which was discussed by Dr Victor F Marshall, New York, and, in closing, Dr Havens

MEDICAL NEWS

ARKANSAS

Dr Morris Appointed Associate Dean—Dr Woodbridge E Morris, associate clinical professor of medicine, University of Arkansas School of Medicine, Little Rock, has been appointed associate dean. Dr Morris has been affiliated with Trinity Hospital and Clinic, Arkansas Children's Home and Hospital, St Vincent Infirmary, and Arkansas Baptist Hospital, and with Johns Hopkins Hospital, Baltimore, and Henry Ford Hospital, Detroit. He served as director of the maternal and child health service in Delaware, where, with his wife, he organized the crippled children's service. Dr Morris is president of the Pulaski County Tuberculosis Association and chairman of the Health Council of Greater Little Rock.

CALIFORNIA

Dr Eymundson Retires—After 30 years on the staff of St Francis Memorial Hospital, San Francisco, Dr Kristbjorn S Eymundson retired to private life May 1. At a recent staff meeting, a resolution was read that said in part, "Be it resolved that the Medical Staff and the Board of Trustees of Saint Francis Memorial Hospital do thank K S Eymundson, M.D., for his years of devoted service, constant attention to employees and student nurses without remuneration of any kind, and, be it further resolved that the aforesaid Ben Eymundson be and hereby is granted whatever use of our facilities and friendship he shall care to have in the many years which we trust are before him." Dr Eymundson was presented with a perpetual clock by the advisory council and board of trustees at the Bohemian Club.

Mental Hygiene Program—Dr Norman Q Brill has been selected to head a coordinated mental hygiene program by the University of California at Los Angeles School of Medicine and the state department of mental hygiene. Dr Brill will serve both as chairman of the department of psychiatry at the new medical center and as director of a state department mental hygiene unit to be built near the Los Angeles campus. He was deputy chief of the neuropsychiatry division of the Army Surgeon General's office in 1945-1946 and served as head of the department of neurology at the Georgetown University School of Medicine, Washington, D.C., for several years. The campus program at the medical center is primarily directed toward undergraduate professional training and basic research while the program at the state department includes postgraduate professional training and clinical research.

COLORADO

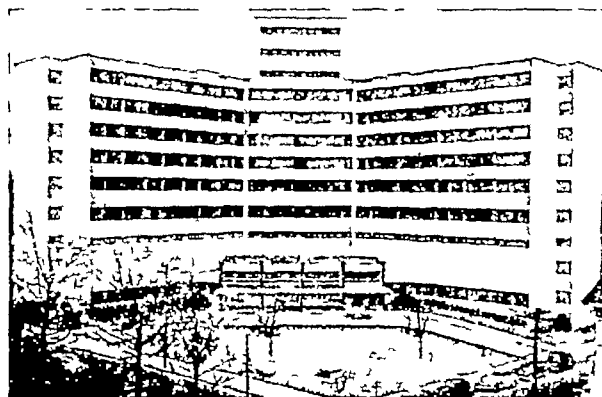
Gerald Webb Memorial Laboratory—Cornerstone laying ceremonies for the Gerald B Webb Memorial Laboratory were recently held at the University of Colorado Medical Center, Denver. The \$150,000 structure is being built by the Colorado Foundation for Research in Tuberculosis, established 29 years ago in Colorado Springs by the late Dr Webb and supported by private contributions from his friends and former patients. The foundation has received an endowment of \$200,000, the income from which supports its research, according to Dr James J Waring, president of the board of trustees. Research under way is concerned with evaluating present antibiotics for tuberculosis, developing a faster method for culturing the tubercle bacillus, and studying new antibiotics. Results of several years of research, done while the foundation had its laboratories at Colorado College in Colorado Springs, have been incorporated in a book, now in press, entitled "The Metabolism of the Tubercle Bacillus," written by Dr William F Drea of the foundation with the joint authorship of A Andrejew of the Pasteur Institute of Paris.

Physicians are invited to send to this department items of news of general interest for example those relating to society activities, new hospitals, education and public health programs should be received at least three weeks before the date of meeting.

Course in Infectious Diseases—The department of medicine and the Office of Graduate and Postgraduate Medical Education of the University of Colorado School of Medicine, Denver, will sponsor a postgraduate course on infectious diseases Aug 17-19. Among the topics of special interest will be the rickettsial diseases prevalent in the Rocky Mountain states and diseases of virus etiology. Guest lecturers will include Dr William M M Kirby, associate professor of medicine, University of Washington School of Medicine, Seattle, and Herald R Cox, ScD, director of viral and rickettsial research, Lederle Laboratories Division, Pearl River, N.Y. For information write to the Office of Graduate and Postgraduate Education, University of Colorado Medical Center, 4200 E Ninth Ave., Denver 20.

CONNECTICUT

Grace-New Haven Community Hospital—The recently dedicated Memorial Unit of the Grace-New Haven Community Hospital increases the potential bed capacity of the hospital, available for service to the community and instruction of Yale medical students, to over 800 beds. Funds for the 10 story 337 bed general hospital were raised by public subscription.



Grace New Haven Community Hospital

in the hospital's service area, the total cost of the hospital building and associated laundry, nurses home, and tunnel to the New Haven unit being close to 10 million dollars. The unit has facilities for all services except pediatrics and psychiatry, including operating rooms, laboratories, and a large radiology department.

Personal—Dr Grover F Powers, professor emeritus of pediatrics at Yale University School of Medicine, New Haven, has been named chairman of a 25 member national board to direct research on mental retardation, according to the National Association for Retarded Children, which is sponsoring the research board. Dr Powers, a consultant and fellow of the American Academy of Pediatrics, in 1947 received the Borden award for research in infant and child nutrition. After a period of three years, Dr Ralph M Tovell, Hartford, will retire July 1 as chairman of the VA Council of Chief Consultants. He will be succeeded by Dr Albert M Snell of Palo Alto, Calif. Dr Tovell is chief, department of anesthesiology, Hartford Hospital. Dr Francis J Ryan, assistant chief medical officer of the Hartford regional office, Veterans Administration, for the past seven years, recently was appointed chief medical officer. Dr Ryan, who joined the VA in 1939 as a ward surgeon, has served with the administration in hospitals in Arkansas, Maryland, and Connecticut. He served with the Army Medical Corps during World War II.

DISTRICT OF COLUMBIA

Professors Emeriti—At its commencement May 27, George Washington University, Washington, D. C., conferred the rank of professor emeritus on Dr. Daniel L. Borden, clinical professor of surgery, and Dr. Paul F. Dickens, clinical professor of medicine. Dr. Borden, a past president of the Medical Society of the District of Columbia, joined the faculty of the George Washington University School of Medicine as associate in surgery in 1912. He will continue as director of health administration to the university. Dr. Dickens, who has served as clinical professor of medicine since 1929, has also been professor of medicine at the U. S. Naval Medical School (1925-1938).

GEORGIA

Society News—At a recent meeting of the Atlanta Radiological Society the following officers were elected: president, Dr. Calvin B. Stewart, Atlanta; vice-president, Dr. Ted F. Leigh, Emory University; and secretary, Dr. Albert A. Rayle, Jr., Atlanta.

G. Lombard Kelly Retires as President of College—Dr. G. Lombard Kelly has retired from the presidency of the Medical College of Georgia, Augusta, after an affiliation of 35 years that began when he came to the medical college as instructor in anatomy. In 1934 Dr. Kelly was named dean of the college, and in 1950 was made its president. Dr. Edgar R. Pund, who has held the chair of pathology for 20 years, succeeded Dr. Kelly July 1. The latter, who will remain a few months longer as his advisor and consultant, plans in the fall to become an associate in the department of endocrinology.

Warm Springs Foundation Plans Expansion—Dr. Robert L. Bennett, for many years assistant medical director in charge of physical medicine at Georgia Warm Springs Foundation, has been appointed medical director. Dr. Bennett, who is professor of physical medicine at Emory University School of Medicine, has served as secretary-treasurer of the American Board of Physical Medicine and Rehabilitation and is a past president of the American Congress of Physical Medicine and Rehabilitation. Drs. Charles E. Irwin, Hal S. Raper, and Thomas Gucker III will continue in their present positions of director of orthopedic surgery, director of internal medicine, and assistant director of orthopedic surgery, respectively, and Dr. Harry W. Mims will serve as assistant director of physical medicine and rehabilitation. Because of the demands for patient care and the ability of most communities to handle the after-effects of poliomyelitis, an evaluation service for physicians referring patients to Warm Springs has been designed to assist the local physician in complete care of the patients. On request of the referring physician, the patient may be fitted with necessary supportive, assistive, or adaptive apparatus, and home routine will be shown the patient and/or his family. The foundation will continue to treat poliomyelitis patients through the inpatient services of physical medicine and orthopedic surgery. Its facilities will still be devoted primarily to the care of the after-effects of poliomyelitis, but other problems resulting in physical handicap requiring similar rehabilitative measures will be studied.

ILLINOIS

Walter Reed Society Honors Dr. Koritz—At its annual meeting in Chicago the Walter Reed Society, composed of persons who have served as volunteer subjects for experimental research, honored Dr. Lloyd Thomas Koritz, Chicago. The citation states that many lives are being saved through the use of new methods of rendering artificial respiration to victims of drowning or electric shock, as a result of the experiments to which Dr. Koritz subjected himself and that resulted in a new type of push pull respiration.

As part of the experiments Dr. Koritz was hung from a telephone pole with lineman's straps and climbing irons, curare and sodium thiopental (Pentothal) were administered, and artificial respiration was applied. It was found that the new resuscitation method saved time in starting artificial respiration of linemen shocked while on poles. In another experiment, dealing with metabolism studies, Dr. Koritz ingested a pound

of homogenized raw liver daily for a month. Dr. Koritz, who is serving his internship at Cook County Hospital in Chicago, plans to enter general practice in his home town, Rochelle, with Dr. Arthur R. Bogue, who first encouraged him to become a physician.

Chicago

Gift to Hektoen Institute—A check for \$10,000 was recently given to the Hektoen Institute for Medical Research at Cook County Hospital by the Dr. Julian D. Levinson Foundation, which has contributed \$50,000 to the institute during the last two years.

Memorial Lecture—The Frederick Robert Zeit Memorial Lecture, sponsored by Alpha Kappa Kappa fraternity, was recently presented in Thorne Hall of Northwestern University by Dr. Walter C. Alvarez, professorial lecturer in medicine, University of Illinois College of Medicine. Dr. Alvarez spoke on "Some Problems in Modern Diagnosis."

Anesthesiologists Honor Dr. Luckhardt—On the 30th anniversary of his discovery of the use of ethylene gas for anesthesia, Dr. Arno B. Luckhardt was honored at a party given by the division of anesthesiology, University of Chicago School of Medicine. In addition to members of the present staff, persons concerned with the original experiments were present. Dr. J. Bailey Carter, who was Dr. Luckhardt's assistant, Dr. Carl A. Dragstedt, who turned anesthesiologist for the occasion of the first human experiment on Drs. Luckhardt and Carter, Dr. Edwin M. Miller, the first surgeon to use ethylene, Dr. Edward D. Allen, the first obstetrician who administered the gas to Mrs. Luckhardt and to Mrs. Dragstedt in childbirth, and Anton J. Carlson, Ph.D.

Personal—Dr. John H. Pribble has been named chief medical examiner for the Illinois Athletic Commission. —Dr. Paul Chesley Hodges, professor of radiology, University of Chicago School of Medicine, recently presented the annual lecture on "Fibrous Dysplasia of Bone" for Alpha Omega Alpha of the University of Wisconsin Medical School, Madison. —Dr. Leon Unger has returned from a trip, during which he lectured on bronchial asthma and migraine before medical societies in Hawaii, Japan, Hong Kong, Siam, Pakistan, Calcutta, New Delhi, and Poona in India, Haifa and Jerusalem in Israel, and Athens, Greece, some of these lectures were held under the auspices of the American College of Chest Physicians. —Dr. Robert H. Ebert, professor of medicine, University of Chicago Medical School, recently presented the William Snow Miller Memorial Lecture on "Changes in Connective Tissue Reaction Induced by Cortisone" at the University of Wisconsin Medical School, Madison. —Dr. James P. Simonds, professor emeritus of pathology, Northwestern University Medical School, was guest of honor at an open house in the Cancer Prevention Center of Chicago, 17 W. Huron St., to mark the 10th anniversary of its cancer prevention clinic. Dr. Simonds was president of the Chicago Medical Society when the clinic first opened.

INDIANA

Medical Advisory Committee—Gov. George N. Craig has appointed as his medical advisory committee Drs. Dillon D. Geiger, Bloomington, chairman, Margaret E. Morgan, Austin, Bert E. Ellis, Indianapolis, past president of the Indianapolis Medical Society, E. Vernon Hahn, Indianapolis, and William H. Howard, Hammond, president-elect of the Indiana State Medical Association.

Dr. J. H. Combs Honored—Dr. John H. Combs, Evansville, was recently honored at the annual dinner of the medical and surgical staff of the Welborn Memorial Baptist Hospital, when an award 'in appreciation of his self-sacrifices, his unwavering devotion to his profession, and the great assistance he has given the staff of the hospital' was given him. It was the request of the hospital staff that the new Jewett Refrigerator Bank, which it was presenting to the hospital, be named the John H. Combs Blood Bank. Dr. Combs has been affiliated with the hospital for many years.

IOWA

Merit Awards—At the annual meeting in Des Moines the Iowa State Medical Society presented awards of merit to (1) Dr Harold E Farnsworth, Storm Lake, who served for many years as a member and as chairman of the society's Committee on Child Health and Protection, and for the past three years has been active with the state board of medical examiners, (2) Dr Charles T Maxwell, Sioux City, former chairman of the committee on medical economics (3) Dr Gordon F Harkness, Davenport, former trustee and president of the society, and (4) Dr Lee Roy Woodward, Mason City, former committee member, district councilor, trustee, president-elect, and president.

KENTUCKY

Howard Award to Dr Hiestand—Dr Clement V Hiestand, mayor of Campbellsville, was recently given the E M Howard award, a gold key, by the Kentucky Academy of General Practice Dr Hiestand, who is 82 years old, is a former member of the Taylor County Board of Education and is chairman of the County Board of Health He has headed the Muldraugh Hill Medical Society, the Tri-County Medical Society, and the medical staff at Campbellsville's Rosary Hospital

University News—The University of Louisville School of Medicine has appointed Dr Robert E Bruner associate professor of neurology and has promoted Drs Irving O Dein, Lewis L. Levy, and Richard P Schmidt to the rank of assistant professors of neurology Dr James C Moore has been named assistant professor of physiology—Dr Walter S Coe, assistant professor of medicine, University of Louisville School of Medicine, has been awarded an A Blaine Brower Traveling Scholarship by the American College of Physicians, which permits him to spend one month visiting any medical center of choice—The school also reports the establishment of the Floyd Brewer Memorial Foundation by Dr Walter E Brewer, the fund to be used to render assistance to medical education and research, specifically as a loan fund for students and interns—A new chair in the department of internal medicine, to be called the John Walker Moore Professorship of Medicine, has been approved by the board of trustees, and three new sections have been established in the department of medicine (1) rheumatic diseases Dr Robert L. McClendon, chief, (2) hematology, Dr Marion F Beard, chief and (3) endocrinology, Dr James R Hendon, chief—Dr John H F Marchand, instructor in medicine at Cornell University Medical College, New York, has been appointed associate professor in the department of medicine and medical director of the newly organized University of Louisville Poliomyelitis Respirator Care Center

LOUISIANA

State Medical Election—At its annual meeting in New Orleans the Louisiana State Medical Society elected the following officers president, Dr Philip H. Jones, New Orleans president-elect, Dr Walter O Moss Lake Charles vice presidents, Drs Cuthbert J Brown, New Orleans, W Kernan Irwin, Baton Rouge, and Milton Maxwell Hattaway, New Orleans, and secretary treasurer (reelected) Dr C Grenes Cole, New Orleans

Eyes for Ophthalmic Research—The Louisiana State University School of Medicine, New Orleans, reports that in the last six years almost 600 human eyes have been mailed to its ophthalmic laboratory for free examination and diagnosis Diagnostic results are reported to the physician before the patient leaves the hospital, so that emergency treatment may be provided if necessary Aleta N Barber, PhD who supervises the laboratory, states that one of the greatest values of the laboratory is the help it provides in training specialists in eye diseases Courses on the development of the eye and its relationship to such conditions as congenital blindness and glaucoma and pathology courses dealing with acquired eye diseases have been taught to an average of 20 specialists annually Current research at the laboratory includes a study

of the development of the visual pathway of the eye, in an attempt to discover causes of congenital blindness, treatment of diseases causing blindness, effects of radioactive isotopes in the treatment of glaucoma, and the healing of wounds of the cornea and its significance in corneal transplants

MARYLAND

Memorial to Dr Keller—Hospitality House, a memorial honoring her late husband, Dr William S Keller, was recently presented to the Bethesda Hospital by Mrs Herbert C Shottwell It is described as 'a bright and colorful place where guests visitors, patients, doctors, nurses and staff members may drop in for gifts and refreshment' It is serviced by the Juniorades at school free hours and by mothers who assist at hours when the Juniorades are not available

Personal—Dr Charles R Foutz, past president of the Alumni Association of the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore (1923-1933), was recently honored on his 80th birthday by an open house arranged by scores of friends, medical and business associates, and townspeople of Westminster, where he has been practicing for many years Dr Foutz is a member of the Army Advisory Committee of the Second Army and a member of the board of trustees of the Maryland General Hospital, Baltimore Tribute was paid to him in an article appearing in the *Baltimore Sun*—At commencement June 5, Boston University School of Medicine bestowed on Dr Robert Hanna Felix, director of the National Institute of Mental Health, Bethesda, the honorary degree of doctor of science

MICHIGAN

Careers for Maturing Workers—This will be the theme of the University of Michigan Sixth Annual Conference on Aging in Ann Arbor, July 8-10 Discussion sections will consider economic, social, and personal values of continuing employment, the maturing worker from the standpoint of health, age, skill, and motivation as factors in adjustment of the older worker, counseling, guidance, placement, and training continuing employment in business and industry, practical considerations in specific fields of work including arts, crafts manufacturing, and service occupations, development of new opportunities in all fields of work and needed action by business, industry, unions, communities, and government agencies Information may be secured from Wilma Donahue, PhD Chairman, Division of Gerontology, University of Michigan, 1510 Rackham Bldg, Ann Arbor

NEW YORK

Personal—Dr Arthur J Bedell, Albany, recently returned from a lecture tour in Johannesburg and Cape Town in the Union of South Africa, Cairo, Egypt, and Athens, Greece—Dr Richard V Foster, Helmut has been appointed to fill the newly created post of assistant state commissioner of mental hygiene Dr Foster, who has been in state hospital service 20 years, was previously affiliated with Rockland State Hospital, Orangeburg, Grasslands Hospital, Valhalla, Pilgrim State Hospital, West Brentwood, and Central Islip State Hospital

Club Aids Speech Defectives—The James Sonnett Greene Club, a nonprofit organization affiliated with the National Hospital for Speech Disorders in New York City, has made available a teacher for underprivileged children with speech defects The club, which is named for the late Dr James Sonnett Greene, founder of the National Hospital for Speech Disorders, has 400 members in various parts of the world Most members were patients of Dr Greene, some as long as 30 years ago About 65% of the patients registered at the hospital receive free or clinic care A recent study disclosed that 32% of patients treated stuttered, 26% had articulatory disturbances, and 10% had voice disorders Thirty five per cent of the patients are children under 16

New York City

Griffis Medical Library Fund—Cornell University Medical College, New York, announces establishment of the \$75,000 Griffis Medical College Library Fund, income from which will be used to purchase books, periodicals, and other publications for the college. The fund is endowed by Mr Stanton Griffis of New York and members of his family. Mr Griffis is a Cornell graduate (1910), a trustee emeritus of the university, a former United States ambassador to Poland, Egypt, Argentina, and Spain, an investment banker, and a member of the Board of Managers of the Memorial Hospital in New York City.

Personal—Dr John B Grant, associate director of the division of medicine and public health of the Rockefeller Foundation, was recently awarded the Order of the Lion of Finland for his services in developing the health and welfare of Finland (1948-1951).—Dr Harold Brandaleone recently addressed the Southside Clinical Society in Oakdale, L I, on the "Management of Diabetes Mellitus".—The Valley Forge Heart Institute and Research Center, Fairview Village, Pa., presented the 1953 citation to Dr Albert S Hyman, director of medicine, New York City Hospital, for his research on the electrophysiology of the dying heart and his development of the artificial pacemaker for cardiac resuscitation.—Dr Ambrose P Merrill, superintendent of St Barnabas Hospital for Chronic Diseases, has been elected president of the Greater New York Hospital Association, and Dr Martin R Steinberg, director, Mount Sinai Hospital, has been named president elect.

Cobalt Cancer Weapon Installed.—A cobalt-60 rotation teletherapy unit, a deep therapy cancer weapon, was recently unveiled at Francis Delafield Hospital, 163rd St and Fort Washington Ave. According to the city department of hospitals, it required three years and about \$65,000 to construct the unit, which weighs 7 tons, and the irradiation of the cobalt within an atomic pile required a year for completion. Similar units now nearing completion are scheduled to be installed at the Memorial Center for Cancer and Allied Diseases, the Westminster Hospital in London, the University of Michigan Medical School, Ann Arbor, and several other hospitals and institutions. Speakers at the ceremony were Drs Marcus D Kogel, commissioner of hospitals, and Willard C Rappleye, dean of the faculty of medicine, Columbia University. Dr Maurice Lenz, director of the radiotherapy service at Francis Delafield Hospital, presided.

OHIO

Medical Stamp Exhibit—The third Medical Stamp Exhibit, cosponsored by the Cleveland Health Museum and the Garfield-Perry Stamp Club of Cleveland, will be held July 11-27 at the museum.

Institute of Mental Health—The sixth annual Summer Institute on Mental Health was recently held in Dayton under the sponsorship of the Dayton State Hospital. Dr Joseph A Mendelson, superintendent, discussed "The Functional Psychoses," "The Organic Disorders," and "Hospital Services for the Mentally Ill." Dr Clyde Simson, director, Dayton Guidance Center, presented "Problems of Infancy and Childhood" and "Prevention of Mental Illness." Dr Roger M Gove, superintendent, Columbus State School, spoke on "The Mental Deficiencies" and Dr Bernard M Kuhr, Upper Miami Valley Guidance Center, on "The Neuroses."

OKLAHOMA

Fifty Year Pins Awarded.—Fifty Year pins were recently presented to Dr Orra A. Pierson, Woodward, Dr William J Trainor, Tulsa, who retired May 1, and Dr Patrick H Mayginn, Tulsa, who retired in 1946, Dr Wallace Byrd, Coalgate, and Dr John B Clark, Coalgate, who also received a life membership certificate in the Oklahoma State Medical Association. Life membership certificates were presented also to Drs Clyde O Williams, McAlester; Dean W LeMaster, Purcell, Joseph E. Cochran, Byars, Robert D Cody,

Centrahoma, George M Davis Sr, Bixby, Richard R. Johnson, Sand Springs, Henry A Ellis, Kiowa, who has served as mayor of Pittsburg for 15 years, and Daniel L. Perry, Robert E Lee Rhodes, Loren C Presson, Thomas B Coulter, Silas Murray, and Silas S Mohrman, all of Tulsa.

University News.—Dr Bernard H Hall, staff psychiatrist at the Menninger Clinic at Topeka, Kan., recently delivered the annual Leroy H Long Memorial Lecture, "The Growing Pains of the Psychiatrist," under the sponsorship of Phi Beta Pi fraternity, at the University of Oklahoma School of Medicine, Oklahoma City.

OREGON

Society News—At the annual meeting of the North Pacific Society of Neurology and Psychiatry in Portland, Dr Gordon H Hutton, Vancouver, B C, was installed as president, Dr William Y Baker, Seattle, was chosen president elect, and Dr Robert A Coen, Portland, was reelected as secretary treasurer.

Gifts and Grants—The following gifts and grants have been accepted by the state board of higher education: \$47,736.97 from the Mrs Nina Bell estate for the benefit of the Doernbecher Memorial Hospital for Children, Portland, \$23,000 from the National Cancer Institute of the U S Public Health Service for a research project on leukemia, under the direction of Dr Edwin E Osgood, and \$7,652.14 from the estate of Ida May Manley of Portland for cancer research. A continuation grant of \$4,750 has been received from the American Cancer Society to support research by Dr Aaron B Lerner, and Dr John E Harris will direct research on metabolism of the lens and cornea of the eye that will be supported by an \$8,500 grant from the National Institute of Neurological Diseases and Blindness, U S P H S.

University News—Dr Kazuo Shizume, a 1946 graduate of Tokyo Imperial University Medical School and an instructor in internal medicine at that institution, is currently spending a year in the division of dermatology, University of Oregon Medical School, Portland, on a U S Government Rehabilitation of Japan fellowship and an American Cancer Society research grant.—Dr William C Pritchard, recently discharged from service in the Army, has been appointed clinical instructor in medicine at the University of Oregon Medical School, Portland.—Dr Daniel K. Billmeyer, resident in pediatrics, became Oregon's first exchange resident when he recently went to Tulane University of Louisiana School of Medicine, New Orleans, for six weeks, while Dr George Herring of Tulane visited the Oregon medical school.—The joint ways and means committee of the Oregon State Legislature has approved \$280,000 for construction of an administrative unit for the University of Oregon Medical School's Crippled Children's Division, to be located in Sam Jackson Park, Portland. For many years activities of the Crippled Children's Division, under the guidance of Dr Paul G Hafner, have been housed in an old building in downtown Portland. The new administrative unit is to be located near the University State Tuberculosis Hospital.

PENNSYLVANIA

Dr James Hardy Accepts Two Appointments—Dr James D Hardy, Cornell University Medical College, New York, has been appointed scientific director of the Aviation Medical Acceleration Laboratory of the Naval Air Development Center at Johnsville, Bucks County, and simultaneously, professor of physiology, University of Pennsylvania School of Medicine, Philadelphia. At the Johnsville laboratory, investigations are under way into the physiological stresses experienced by man under modern high speed flight conditions. In addition to laboratories for work in physiology, biophysics, biochemistry, radiobiology, animal surgery, gas analysis, pathology, and electronics, the unit utilizes a mammoth human centrifuge capable of reproducing artificially the conditions encountered by aircraft pilots in high altitudes. As professor of physiology at the University of Pennsylvania, Dr Hardy will teach in

both the medical school and the graduate school of Arts and Sciences. The university has provided the space and part of the personnel for a radiobiology laboratory where a scintillation counter has been modified to meet the need for a more efficient detector of radioactive substances and for a more accurate measurement of blood flow. Dr Hardy, who entered the Navy as lieutenant in the reserve in 1941, now holds the rank of captain in the reserve.

SOUTH DAKOTA

Society News—The Black Hills District Medical Society recently elected Dr Joseph N Hamm, Sturgis, president, Dr Arthur Semones, Lead, vice president, Dr Harold J Grau, Rapid City, secretary treasurer and Dr Gordon S Owen, Rapid City, censor.

Personal—Dr Frank W Haas has resigned as superintendent of Yankton State Hospital, after 25 years of service, to enter private practice in psychiatry.—Dr Walter L. Hard, professor of anatomy and former assistant dean, has been named dean of the University of South Dakota School of Medical Sciences, Vermillion.

TENNESSEE

Dr Hale Appointed Bacteriology Professor—Dr William M Hale, head, department of bacteriology and virology, Brookhaven National Laboratories, Long Island, N Y, has been appointed professor of bacteriology at the University of Tennessee Medical Units, Memphis. Dr Hale, who was formerly professor of bacteriology at the University of Iowa, Iowa City, and has served as a member of the National Board of Medical Examiners in charge of bacteriology, will continue as consultant to the Brookhaven laboratories.

TEXAS

State Medical Election—At its annual session in Houston, the Texas Medical Association elected the following officers: president, Dr George Turner, El Paso, president-elect, Dr Francis J L Blasingame, Wharton, vice president, Dr Andrew S Tomb, Victoria, secretary, Dr John M Travis, Jacksonville, and treasurer, Dr Thomas H Thomason, Fort Worth.

University News—Dr Alastair W B Cunningham of the University of Edinburgh has been appointed professor of pathology at the University of Texas Medical Branch, Galveston. He will be responsible for instruction and research on arthritis and diseases of the joints.—Dr Vernie A Stembridge, assistant professor of pathology at the University of Texas Medical Branch, Galveston, has been placed in charge of the cancer program of the medical branch. With Lieut Col Frank M Townsend, U S Air Force (MC), of Lackland Air Force Base, Dr Stembridge has prepared an index of 107,000 pathological diagnoses made at the John Sealy Hospital, Galveston, for statistical analysis.

WASHINGTON

Hospital News—Dr Jay I Durand was recently honored at a dinner for the staff of Children's Orthopedic Hospital, where he has served for 25 years as chief of the pediatric service. An oil portrait of Dr Durand was unveiled in the new building.

New Boeing Medical Headquarters—Dr Thrift G Hanks, medical director, Boeing Airplane Company, Seattle, has announced that the medical department has moved into new headquarters. The central medical department is operated in addition to 11 dispensaries maintained by the department in Boeing's Seattle and Renton plants. The department operates three ambulances and employs 57 persons.

Personal—Dr Reuben L. Larsen has been appointed coordinator of medical services for the Seattle civil defense organization.—Dr Otto T Trott, Seattle, recently received the Robert C Miller memorial award, given annually by the Northwest

Region Ski Patrol Association to its most outstanding member. Dr Trott was cited for his work in medical education for National Ski Patrol members and for his liaison work with the Mountain Rescue Council.

ALASKA

Organize Mental Health Society—A feature of Mental Health Week, the organizational meeting of the Juneau Mental Health Society, the first mental health society to be organized in the territory, was scheduled for May 7. Two informal pre-organization meetings were held while educational material and resources for use of the members were being accumulated.

HAWAII

Society News—At the annual meeting in Wailuku the Hawaii Territorial Medical Association elected the following officers from Honolulu: president, Dr Edwin K Chung Hoon, president-elect, Dr Nils P Larsen, secretary, Dr Samuel L Yee, and treasurer, Thomas H Richert.

Poliomyelitis Institute—A workshop institute in the care of poliomyelitis was conducted at Tripler General Hospital at Moanalua June 22-24 under the joint sponsorship of the District of Oahu Nurses Association, the Honolulu Chapter of the National Foundation for Infantile Paralysis, and the Hawaii Chapter, American Red Cross. The purpose of the institute was to strengthen the community in its ability to cope with any future poliomyelitis epidemic and to give interested nurses the opportunity to work with the latest equipment for the care of the disease.

Annual Health Report—The Department of Health, Territory of Hawaii, Honolulu, reports that in 1952 an all time low infant mortality of 21 per 1,000 live births was realized, 98% of all babies were born in hospitals, whereas 20 years ago only 10% were born in hospitals, 13% of all expectant mothers in the territory in 1952 attended preparatory classes. Syphilis declined about 40% in 1952 from the figure for the previous year, the total number of cases of tuberculosis reported was somewhat lower in 1952 than in the previous two years, and only 20% of the patients with known active cases were not hospitalized. A steady decline in the number of new cases of leprosy has been reported for the last four years.

GENERAL

Rome Surgeons Honor Americans—The Rome Surgical Society has conferred honorary fellowships on Drs Raymond W McNealy, Chicago, Charles P Bailey, Philadelphia, and Edgar F Berman, Baltimore.

New WMA Headquarters—According to a notice from Dr Louis H Bauer, secretary general, the World Medical Association and the United States Committee, Inc., have moved to new headquarters at 345 E 46th St., New York 17 (Telephone OXford 7 0090).

Publishers Appoint New Officers—Mr Robert S Gill has resigned after 11 years as president of the Williams & Wilkins Company, medical publishers of Baltimore. He becomes chairman of the board and is succeeded by Mr E F Williams as president. Mr Edward M Passano is executive vice president, and Mr V Robert Edwards becomes director of sales and advertising.

Teaching Affiliation—The New York Medical College, Flower and Fifth Avenue Hospitals, and the Kessler Institute for Rehabilitation in West Orange, N J, have reached an affiliation for teaching purposes. Dr Jerome S Tobis, director of the department of physical medicine and rehabilitation at the college, is a member of the consulting medical staff of the institute, and Dr Henry H Kessler, medical director of the institute, is a clinical professor of rehabilitation at the college.

Conference on Hormone Measurement—An international conference on methods of measuring steroid hormones was recently conducted under the auspices of the Laurentian Hormone Conference, at the Worcester Foundation for Experimental Biology, Shrewsbury, Mass., a nonprofit organization that conducts research. Expenses were paid from a grant by the National Science Foundation. Papers read at the sessions will be printed in a special volume of 'Recent Progress of Hormone Research,' official publication of the Laurentian Hormone Conference.

Medical Specialties Preference Test—According to the director of information of Stanford University, this test was developed by Edward K. Strong Jr., Ph.D., of Stanford University, and Col. Anthony C. Tucker, Ph.D., of the Army Medical Service Corps, after questioning more than 4,000 physicians and about 800 medical school seniors. It was financed by grants from the Surgeon General of the Army. The test results are intended not to show a man's ability or aptitude for a particular medical specialty but to reveal to what extent his interests agree with the interests of other successful men already practicing in that specialty.

Joseph A. Capps Prize—The Institute of Medicine of Chicago offers a biennial prize of \$600 for the most meritorious investigation in medicine or in the specialties of medicine. The investigation may be also in the fundamental sciences, provided the work has a definite bearing on some medical problem. Competition for 1953 is open to graduates of Chicago medical schools who completed their internship or one year of laboratory work in 1951 or thereafter. Manuscripts, which must be submitted to the Secretary of the Institute, 86 E. Randolph St., Chicago 1, not later than Dec. 31, become the property of the institute.

Award to Dr. Zilboorg—At its annual meeting in Los Angeles, the American Psychiatric Association presented to Dr. Gregory Zilboorg, associate clinical professor of psychiatry, New York Medical College Flower and Fifth Avenue Hospitals, and clinical associate professor, State University of New York College of Medicine at New York City, its \$1,000 Isaac Ray award for his contributions to legal problems connected with mental disorders. Dr. Zilboorg will deliver six lectures on "The Psychology of the Criminal Act and Punishment" at Yale University, New Haven, Conn., Oct. 14, 21, 28, and Nov. 4, 11, and 18, under the joint sponsorship of the law school and the school of medicine. The lectures will then be published. Dr. Zilboorg's contributions include "Legal Aspects of Psychiatry," which appeared in the book "One Hundred Years of American Psychiatry," published on the 100th anniversary of the founding of the American Psychiatric Association (1844-1944), "Mind, Medicine, and Men," and "History of Medical Psychology."

Tuberculosis Association Awards—At its annual meeting in Los Angeles the National Tuberculosis Association bestowed on Dr. James J. Waring, professor of medicine, emeritus, University of Colorado School of Medicine, Denver, the Trudeau medal for medical achievement in tuberculosis and on Dr. James R. Reuling, Bayside, N. Y., speaker of the A. M. A. House of Delegates, 1952-1953, the Will Ross medal for distinguished service in the tuberculosis movement in a field other than the medical sciences. Dr. Waring, who became a patient at the Trudeau Sanatorium at Saranac Lake, N. Y., while a student at Johns Hopkins University School of Medicine, Baltimore, continued his medical studies at the University of Colorado, where he subsequently served as professor of medicine from 1933 until 1952, when he became professor emeritus and president of the board of trustees and director of research of the Colorado Foundation for Research in Tuberculosis. Dr. Reuling was president of the National Tuberculosis Association for 1947-1948. He is consulting physician at Flushing Hospital, Triboro Hospital, Jamaica, N. Y., Rockaway Beach, and Long Beach Memorial hospitals, and clinical professor of medicine, New York Medical College, Flower and Fifth Avenue Hospitals. He served in the Medical Corps of the Navy from 1916 to 1920 and is a past president of the Queens County Medical Society.

Grants in Cancer Research—The Committee on Growth of the National Research Council, acting for the American Cancer Society, is accepting applications for grants in aid in support of cancer research. Applications for new grants received before Oct. 1 will be considered during the winter, and grants recommended at that time will become effective July 1, 1954. Investigators now receiving support will be notified individually regarding application for renewal of these grants. In addition to clinical investigations on cancer, the research program includes fundamental studies in the fields of cellular physiology, morphogenesis, genetics, virology, biochemistry, metabolism, nutrition, cytochemistry, physics, radiobiology, chemotherapy, endocrinology, and environmental cancer.

During the past year the American Cancer Society, on the recommendation of the Committee on Growth, has awarded about 250 grants totaling more than \$1,700,000. A program of similar magnitude is contemplated for the coming year. Application blanks and additional information may be obtained from the Executive Secretary, Committee on Growth, National Research Council, 2101 Constitution Ave., Washington 25, D. C.

Endocrinology Awards—At the annual dinner of the Endocrine Society in New York, May 29, the Squibb Institute for Medical Research award (a certificate and \$2,500) was presented to Dr. David Marine, Rehoboth Beach, Del., who was one of the first to demonstrate the correlation between endemic goiter and iodine deficiency in the diet. Dr. Marine, who began his work at Western Reserve University, Cleveland, resigned in 1920 to become director of the laboratory division of Montefiore Hospital for Chronic Diseases in New York, where he remained until his retirement in 1945.

For the first time the Ciba Award for distinguished research in endocrinology (\$1,800) was bestowed on a husband and wife team of scientists, Sidney Roberts, Ph.D., associate professor of physiological chemistry at the School of Medicine, University of California at Los Angeles, and his wife, Clara Marian Szego, Ph.D., assistant professor of zoology at the same university.

James Ashmore, who received his Ph.D. in biochemistry from St. Louis University School of Medicine, June 2, was awarded the Schering Fellowship in Endocrinology. He has worked under the direction of Dr. Edward A. Doisy, director of the department of biochemistry, on hormone metabolism. He plans to conduct his research on some aspects of intermediary carbohydrate metabolism in the Harvard Medical School, Boston, with Albert B. Hastings, Ph.D., professor of biological chemistry.

Academy of Sciences Announces Prize Contests—The following prize contests have been announced by the New York Academy of Sciences:

A. Cressy Morrison Prizes in Natural Science—Two prizes of \$300 each for the two most acceptable papers in a field of science covered by the academy or an affiliated society.

Boris Pregel Prize in the Field of Natural Radioactive Substances—A prize of \$500 for the most acceptable paper received in competition during the year 1953 embodying the results of research in the field of natural radioactive substances, including the precise determination of their physical and chemical properties and constants.

Wenner Gren Foundation Prize of the New York Academy of Sciences—A prize of \$1,000 for the best paper submitted on the general theme of the significance of the human factor in the advancement of science. It is the purpose of this award to stimulate cross-disciplinary thought, research, and writing on the influence of human cultural and social factors in the biological and physical sciences. All papers must embody the results of original research not previously published, must be typewritten in English, and must be accompanied by all necessary photographs, drawings, diagrams, and tables, and a summary of the data presented and conclusions reached. Papers must be submitted on or before Oct. 15 to the Executive Director of the New York Academy of Sciences, 2 E. Sixty Third St., New York 21. Awards will be made at the annual meeting in December.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories, and possessions in the weeks ended as indicated

Area	June 20 1953		June 21 1952 Total
	Paralytic Type	Total Cases Reported	
New England States			
Maine		1	1
New Hampshire		1	
Vermont			
Massachusetts	1		1
Rhode Island		3	
Connecticut			
Middle Atlantic States			
New York	6	22	15
New Jersey		2	1
Pennsylvania		5	1
East North Central States			
Ohio	8	15	18
Indiana		5	6
Illinois	3	10	6
Michigan	2	4	4
Wisconsin		2	6
West North Central States			
Minnesota	8	15	3
Iowa	5	9	16
Missouri	9	25	3
North Dakota	1	1	1
South Dakota			
Nebraska	3	6	5
Kansas		11	3
South Atlantic States			
Delaware		1	
Maryland	1	1	
District of Columbia			
Virginia	2	6	7
West Virginia		1	5
North Carolina	4	12	8
South Carolina		1	1
Georgia	4	17	7
Florida	2	9	12
East South Central States			
Kentucky	1	2	3
Tennessee	2	8	2
Alabama	18	28	8
Mississippi		12	21
West South Central States			
Arkansas	1	8	4
Louisiana	7	21	17
Oklahoma	2	13	4
Texas	12	63	146
Mountain States			
Montana		1	7
Idaho		1	1
Wyoming	1	1	2
Colorado		7	2
New Mexico		2	2
Arizona	2	4	6
Utah		2	
Nevada			
Pacific States			
Washington		2	19
Oregon		1	2
California	10	40	53
Territories and Possessions			
Alaska			
Hawaii		1	6
Puerto Rico	2	2	
Total	118	406	420

Safety Council Names Award Winners.—Connecticut and Evanston, Ill., have been named grand award winners in the 1952 National Traffic Safety Contest conducted by the National Safety Council in which 45 states and 750 cities participated. Cited in the honor roll section of the contest for going through 1952 without a traffic fatality were 647 municipalities with populations between 5,000 and 10,000. States that won first place in their divisions were Connecticut (eastern) in addition to winning the grand award, Virginia (southern), Iowa (midwestern), Colorado (western), and Pennsylvania among the eight largest states, which are grouped separately due to their peculiar traffic problems growing out of large population and mileage. Cities that won first

place in their population groups were Detroit (cities of more than 1 million population), Washington, D. C. (750,000 to 1 million), Buffalo (500,000 to 750,000), Kansas City, Mo. (350,000 to 500,000), Rochester, N. Y. (200,000 to 350,000), Wichita, Kan. (100,000 to 200,000), Evanston, Ill. (50,000 to 100,000) in addition to winning the grand award, Bloomington, Ind., Manitowoc, Wis., and Shaker Heights, Ohio (25,000 to 50,000), and Garden City, Kan., and Grosse Pointe Park, Mich. (10,000 to 25,000).

Blackwell Awards.—The Elizabeth Blackwell citations of New York Infirmary were recently presented at the Manhattan General Hospital, which is host to the infirmary while its new hospital is being built on Stuyvesant Square. Awards were made as follows:

(1) To Dr. Alice Hamilton Hadlyme Conn, the first woman appointed to the faculty of Harvard University where for 15 years as professor of industrial medicine in the medical school she trained many other leaders in that field. (2) To Dr. Josephine B. Neal, New York, who for many years was in charge of the division of acute infections of the central nervous system of the Department of Health of New York City. From 1936 until her retirement she took on the additional burden of associate director of laboratories of the health department. (3) To Dr. Ellen C. Potter, Trenton, N. J., as secretary of welfare of the state of Pennsylvania she was the first woman cabinet officer in any state. She subsequently became director of medicine department of institutions and agencies of New Jersey, president of the American Medical Women's Association, president of the National Conference of Social Work, and acting president of the Woman's Medical College of Pennsylvania. (4) To Dr. Florence R. Sabin, Denver, the first woman to hold a full professorship in Johns Hopkins University School of Medicine. For 13 years she was a member of the Rockefeller Institute for Medical Research. She subsequently became chairman of the board of health and hospitals in the city and county of Denver and manager of its department of health and charity. (5) To Dr. Ida S. Scudder, the granddaughter of America's first medical missionary and the daughter of a medical missionary who raised money for the establishment of a hospital at Vellore, India, and in addition established a tuberculosis sanatorium, a roadside dispensary service, and a medical school for women, now a government-approved school that has graduated hundreds of doctors and nurses.

Society News.—The American Otorhinologic Society for Plastic Surgery, Inc., recently elected Dr. Harry Neivert, New York, president, and Dr. Louis Joel Feit, New York, secretary. At its annual meeting the Western Society of Electroencephalography elected Dr. Eugene M. Webb, San Francisco, president, and Dr. Sylvester N. Berens, Seattle, secretary-treasurer. At the annual meeting in New York the Society for Investigative Dermatology elected Dr. Arthur C. Curtis, Ann Arbor, Mich., president, and Dr. Francis W. Lynch, St. Paul, vice president. At the annual meeting in St. Louis the American Urological Association elected Dr. J. A. Campbell Bolston, Baltimore, president, and chose Dr. W. Joseph McMartin, Omaha, as president-elect. At the annual meeting of the American Diabetes Association the following officers were elected: president, Dr. Randall G. Sprague, Rochester, Minn., vice presidents, Drs. Henry B. Mulholland, Charlottesville, Va., and Henry T. Ricketts, Chicago, secretary, Dr. John A. Reed, Washington, D. C., and treasurer, Dr. William H. Olmsted, St. Louis. At the annual meeting of the American Academy of Tuberculosis Physicians in New York, the following officers were elected: president, Ethan Allan Brown, Boston, vice presidents, Drs. Carl H. Gellenthien, Valmora, N. M., and Zoltan Galambos, Chicago, auditor-editor, Dr. Harry J. Corper, Denver, officer of sessions, Dr. Laurie Lee Allen, Milwaukee, historian, Dr. William E. Wakely, East Orange, N. J., and secretary, Dr. Oscar S. Levin, Denver. At the annual meeting in New York the American Board of Physical Medicine and Rehabilitation elected Dr. Robert L. Bennett, Warm Springs, Ga., as president, and Dr. Earl C. Elkins, Rochester, Minn., secretary-treasurer. Dr. William H. Schmidt, Philadelphia, was reelected vice-chairman. The California chapter of the American College of Chest Physicians has elected Dr. Alfred Goldman, Beverly Hills, president, Dr. William G. Winter, Fresno, vice president, and Dr. Walter B. Brown, Livermore, secretary-treasurer. The American Association of Friends and Families of Psychiatric Patients has elected as president Dr. George W. Henry, associate professor at Cornell University Medical College, New York, and as vice president Dr. Edward M. Shepard of the Cornell Medical College faculty.

FOREIGN

Foreign Journal on Genetics—The new quarterly, *Journal de Genetique Humaine*, published in Geneva, Switzerland, is said to be the first journal in French devoted to human genetics. The editors are Prof. A. Franceschetti, director of the University Ophthalmological Clinic, Geneva, Switzerland, Prof. L. Van Bogaert, director of the neuropathological department of the Institute Bunge, Antwerp, Belgium, and Maurice Lamy, professor of human genetics of the Medical Faculty, Paris, France. The journal is published by *Medecine et Hygiene*, 15, Boulevard des Philosophes, Geneva, Switzerland.

Gynecologic Meeting—The 43rd meeting of the Italian Society for Obstetrics and Gynecology will be held in Rome, in Palazzo Barberini, Sept. 21-24. The main subjects on the agenda are modern trends in gynecologic surgery and allergic phenomena in obstetrics and gynecology. Automatic translation apparatus for Italian, German, English, and French will be supplied. Participation in the congress is free to all members of Italian or foreign societies of obstetrics and gynecology. Otherwise the fee is 5,000 lira (approximately \$8). For information write to Prof. Piero Cattaneo, secretary-general, Clinica Ostetrica e Ginecologica del l'Università di Roma, Casella Postale Roma Nomentano 7171.

Medical Books for Korea—Four Korean medical schools will receive about \$7,500 worth of new medical books sent by the United Nations' Korean Reconstruction Agency through CARE. Part of \$150,000 worth of new text and reference books (exclusive of packing and transportation costs) that CARE is buying and shipping to war-depleted Korean universities for UNKRA, the medical volumes will represent 1,252 titles, of which 90% are American books, with the balance English, French, and German. UNKRA is purchasing additional Japanese titles in the medical and other book categories covered by the project, which will cost an over all total of \$200,000 and provide from 50,000 to 60,000 new books.

Meeting on Physical Therapy—The first International Congress of the World Confederation for Physical Therapy, which will be held in London, Sept. 6-11, has as its theme "The Patient's Own Activity as the Underlying Principle of Physical Therapy." Dr. Herman Kabat, Vallejo, Calif., will speak on "Proprioceptive Facilitation Therapy for Paralysis." Social events will include a reception in the Great Hall of the British Medical Association, an evening reception given by the Council of the Chartered Society of Physiotherapy at Guildhall, where the guests will be received by the Lord Mayor of London, and a cocktail party given by the trustees of the Ciba Foundation for the Promotion of International Cooperation in Medical and Chemical Research. Two study courses have been arranged to precede the congress (Sept. 2-4), when a three day course on diseases of the chest will be given at Brompton Hospital and Harefield Hospital, and a three day course on rehabilitation after amputation at Queen Mary's Hospital, Roehampton. Information may be obtained from the organizing secretary, Physical Therapy Exhibition, 55 Romney St., London, S W 1, England.

DEATHS IN OTHER COUNTRIES

Prof. Arturo Castiglioni died recently in Milan, Italy, aged 78. He had been research associate and lecturer in the history of medicine at Yale University, New Haven, Conn., from 1939 to 1943 and professor from 1943 to 1947. As a fellow of the New York Academy of Medicine he lectured before the Section on Historical and Cultural Medicine. In 1942 he was president of the New York Society for Medical History, and on his birthday April 12, 1944, was honored by his American colleagues at a dinner at the Waldorf-Astoria Hotel, New York. He made presentations at universities and medical societies throughout the country, and in 1933 was the Hideyo Noguchi Lecturer at Johns Hopkins University, Baltimore. He served as associate professor of the history of medicine at the University of Siena in 1921 and at the University of Padua from 1922 to 1938. For many years he was honorary

president of the Società Italiana di Storia delle Scienze Mediche e Naturali and in 1950 was honorary president of the Italian Group of the International Union of the History of Science. He was a prolific writer. His "History of Medicine," first published in Italian in 1927, appeared in three revised editions and was translated into six languages.

CORRECTION

Quinidine Therapy in Auricular Fibrillation—In the article on this subject by S. A. Weisman, in *THE JOURNAL*, June 6, page 496, figure 2 was reprinted from the *American Heart Journal*, not figure 1 as was stated in the article.

EXAMINATIONS
AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS *Parts I and II*. All centers where there are five or more candidates Sept. 8-10 (Part I only). Candidates may file applications at any time but the National Board must receive them at least six weeks before the date of the examination they wish to take. *Part III* June 9-26. Examination will be held in each of 31 centers having five or more eligible candidates. Exec. Sec., Dr. John P. Hubbard, 133 South 36th St. Philadelphia 4.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY *Written*. Various locations July 16. Final date for filing applications was January 17. Sec. Dr. C. B. Hickcox, 80 Seymour St. Hartford 15.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILIGOLOGY. All candidates must now pass a written examination. *Written*. Various centers Sept. 3. *Oral*. Philadelphia Oct. 16-18. To be eligible candidate must complete 36 months of training before Oct. 1. Final date for filing applications was May 1. Exec. Sec., Miss Janet Newkirk, 66 East 66th St., New York 21.

AMERICAN BOARD OF INTERNAL MEDICINE *Oral*. San Francisco Sept. 30-Oct. 2. Chicago Nov. 30-Dec. 2. The closing date for acceptance of applications for the San Francisco and Chicago oral examination was April 1. *Written*, October 19. The closing date for acceptance of applications was May 1. Exec. Sec. Treas. Dr. William A. Werrell, 1 West Main St. Madison 3.

AMERICAN BOARD OF NEUROLOGICAL SURGERY *Oral*. New Haven, October. Final date for filing applications is July 1. Sec. Dr. Leonard T. Furlow. Washington University School of Medicine, Kingshighway and Euclid Ave. St. Louis.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY *Written*. Various cities of the United States and Canada Feb. 5. Application for examination or re-examination as well as requests for resubmission of case reports, must be made prior to October 1. Sec. Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

AMERICAN BOARD OF OPHTHALMOLOGY. Chicago Oct. 5-9. *Written*. Various Centers. January 1954. Final date for filing applications is July 1. Sec. Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY. Chicago January 1954. Final date for filing application is August 15. Sec. Dr. Harold A. Seefeld, 122 S. Michigan Ave. Chicago 3.

AMERICAN BOARD OF OTOLARYNGOLOGY *Oral*. Chicago Oct. 5-9. Sec. Dr. Dean M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PATHOLOGY *Written*. *Pathologic Anatomy and Clinical Pathology*. Chicago Oct. 8-10. Sec. Dr. William B. Wartman, 303 E. Chicago Ave. Chicago.

AMERICAN BOARD OF PEDIATRICS *Oral*. Ann Arbor June 26-27. Place undecided Oct. 9-11 (tentative), Indianapolis November. Exec. Sec. Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PLASTIC SURGERY *Entire Examination*. San Diego Oct. 29-31. Final date for receipt of case reports was June 1. *Entire Examination*. Galveston April 17-19. Final date for receipt of case reports is Jan. 1. Corres. Sec. Mrs. Estelle E. Hillerich, 4647 Pershing Ave. St. Louis 8.

AMERICAN BOARD OF PROCTOLOGY *Part II* *Oral and Written*. *Anorectal Surgery and Proctology*. Philadelphia Sept. 19. Sec. Dr. Louis A. Bule, 102-110 Second Ave. S.W. Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY *Oral*. *Radiology*. *Röntgenology*. *Diagnostic Röntgenology* and *Therapeutic Radiology*. Chicago Dec. 6-11. Final date for filing application is July 1. Sec. Dr. B. R. Kirklin, 102-110 Second Ave. S.W. Rochester, Minn.

BOARD OF THORACIC SURGERY *Written*. Various centers throughout the country September 11. Final date for filing application is July 1. Sec. Dr. William M. Tuttle, 1151 Taylor Ave. Detroit 2.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr George F Lull, 535 North Dearborn St. Chicago 10 Secretary
1953 Clinical Session, St. Louis, Dec. 1-4
1954 Annual Session, San Francisco June 21-25
1954 Clinical Session, Miami, Florida Nov. 30-Dec. 3.
1955 Annual Session Atlantic City, N. J., June 6-10
1955 Clinical Session Boston, Nov. 29 Dec. 2.

ALASKA TERRITORIAL MEDICAL ASSOCIATION Sitka July 15-17 Dr William P. Blanton P. O. Box 2569 Juneau Secretary

AMERICAN DIETETIC ASSOCIATION Los Angeles Aug. 24-28 Miss Ruth M. Yakel 620 N. Michigan Ave. Chicago 11 Executive Secretary

AMERICAN ELECTROENCEPHALOGRAPHIC SOCIETY Commander and Continental Hotels Cambridge Mass. Aug. 17-22. Dr John A. Abbott, Massachusetts General Hospital Boston 14 Secretary

AMERICAN VETERINARY MEDICAL ASSOCIATION Royal York Hotel Toronto Canada July 20-23 Dr J. G. Hardenbergh 600 South Michigan Blvd. Chicago 5 Executive Secretary

GERONTOLOGICAL SOCIETY Mark Hopkins Hotel San Francisco Aug. 25-27 Dr Nathan W. Shock Baltimore City Hospitals Baltimore 24 Secretary

NATIONAL MEDICAL ASSOCIATION Nashville Tenn. Aug. 10-14 Dr John T. Glivens 1108 Church St. Norfolk 10 Va. Executive Secretary

PACIFIC DERMATOLOGIC ASSOCIATION Olympic Hotel and University of Washington, Seattle, July 9-10 Dr Ervin H. Epstein 447 29th St. Oakland 9 Calif. Secretary

POST GRADUATE MEDICAL ASSEMBLY OF SOUTH TEXAS Shamrock Hotel Houston July 20-22 Dr C. A. Dwyer 229 Medical Arts Bldg. Houston Secretary

REGIONAL MEETINGS AMERICAN COLLEGE OF PHYSICIANS
West Virginia White Sulphur Springs July 24 Dr Paul H. Revercomb 1031 Quarrier St. Charleston 1 Governor

ROCKY MOUNTAIN CANCER CONFERENCE, Denver July 8-9 Mr Harvey T. Sethman 835 Republic Bldg. Denver 2, Secretary

SOCIETY OF AMERICAN BACTERIOLOGISTS Palace Hotel San Francisco Aug. 10-14 Dr John H. Bailey Sterling Winthrop Research Institute Rensselaer N. Y., Secretary

WEST VIRGINIA STATE MEDICAL ASSOCIATION The Greenbrier White Sulphur Springs July 23-25 Mr Charles Lively P. O. Box 1031 Charleston 24 Executive Secretary

FOREIGN

ASSOCIATION OF SURGEONS OF GREAT BRITAIN AND IRELAND Leeds England, May 13-15 1954 Dr Henry W. S. Wright, 45 Lincoln's Inn Fields, London W.C.2, England Honorary Secretary

BRITISH MEDICAL ASSOCIATION Cardiff S. Wales July 13-17 Dr A. MacCrae, B. M. A. House, Tavistock Square, London W.C.1 England, Secretary

CONGRESS OF INTERNATIONAL ANESTHESIA RESEARCH SOCIETY Chateau Frontenac Quebec Canada October 26-29 Dr A. William Friend 515 Nome Ave. Akron 20 Ohio Chairman Program Committee.

CONGRESS OF THE INTERNATIONAL ASSOCIATION OF LIMNOLOGY Cambridge and Windermere England Aug. 20-30 For information write Professor G. C. Hutchinson, Osborn Zoological Laboratory Yale University New Haven Conn. U. S. A.

CONGRESS OF INTERNATIONAL LEAGUE AGAINST RHEUMATISM, Geneva and Zurich, Switzerland Aug. 24-29 For information write Dr W. Tegner The London Hospital, London E.1 England

CONGRESS OF THE INTERNATIONAL SOCIETY OF ANGIOLOGY Lisbon Portugal Sept. 18-20 Dr Henry Halmovici 105 East 90th St. New York 28 N. Y. U. S. A. Secretary

CONGRESS OF THE INTERNATIONAL SOCIETY OF SURGERY Lisbon Portugal Sept. 14-20 Dr L. Dejardin 141 rue Belliard Brussels Belgium General Secretary

INTERNATIONAL CONFERENCE ON THROMBOSIS AND EMBOLISM, Basle, Switzerland July 15-19 1954 Dr W. Merz, Chief Medical Officer Gynecological Clinic University of Basle Basle Switzerland Hon. Secretary

INTERNATIONAL CONGRESS OF ACUPUNCTURE, Kolpinghaus Adolf Kolping Strasse 1 Munich, Germany August 22-25 Dr G. Bachmann 29 Lilienstrasse München 9 Germany Organizer and Secretary

INTERNATIONAL CONGRESS OF ELECTROENCEPHALOGRAPHY AND CLINICAL NEUROPHYSIOLOGY Boston Mass. U. S. A. Aug. 18-21 Dr Robert S. Schwab Massachusetts General Hospital, Boston 14 Mass. U. S. A. Secretary-General.

INTERNATIONAL CONGRESS OF THE EUROPEAN SOCIETY OF HAEMATOLOGY Amsterdam Holland Sept. 8-12. Dr M. C. Verloof Mallesinghe 15 Utrecht Holland Secretary

INTERNATIONAL CONGRESS ON GENETICS Bellagio Italy August 24-31 Prof. C. Barigozzi Istituto di Genetica Università di Milano 10 via Celoria Milan Italy Secretary

INTERNATIONAL CONGRESS OF HIPPOCRATIC MEDICINE Evian France Sept. 1-6 Prof. P. Delore 13 rue Jarente Lyon France Secretary-General.

INTERNATIONAL CONGRESS FOR HISTORY OF SCIENCE, Jerusalem Israel August 3-7 Prof. F. S. Bodenheimer Hebrew University Jerusalem, Israel President.

INTERNATIONAL CONGRESS OF HYDROCLIMATISM AND THALASSOTHERAPY Dubrovnik Yugoslavia May 8-16 1954 Prof. C. Plavsic Zeleni Venac 1 Belgrade Yugoslavia Secretary General

INTERNATIONAL CONGRESS OF INTERNATIONAL COLLEGE OF SURGEONS Sao Paulo Brazil April 26-May 2 1954 Dr Max Thorek 1516 Lake Shore Drive Chicago Illinois U.S.A. Secretary General.

INTERNATIONAL CONGRESS OF LOGOPEDICS AND PHONOTRICKS Zurich Switzerland Sept. 15 Dr Deso A. Weiss 115 East 86th St. New York 28 N. Y. U. S. A. General Secretary

INTERNATIONAL CONGRESS ON MEDICAL LIBRARIANSHIP London England July 20-25 Mr W. R. LeFauu % London School of Hygiene and Tropical Medicine Keppel Street London W.C.1 England Chairman.

INTERNATIONAL CONGRESS ON MENTAL HEALTH University of Toronto Toronto Ontario Canada Aug. 14-21 1954 For information write Executive Officer International Congress on Mental Health 111 St. George St. Toronto Ontario Canada.

INTERNATIONAL CONGRESS OF MICROBIOLOGY Rome Italy Sept. 6-12 For information write Dr V. Puntoni Citta Universitaria Rome Italy

INTERNATIONAL CONGRESS ON OBSTETRICS AND GYNECOLOGY Geneva Switzerland July 26-31 1954 Dr H. de Watterville Maternité Hôpital Cantonal Geneva Switzerland President.

INTERNATIONAL CONGRESS OF PAEDIATRICS Havana Cuba Oct. 12-17 Prof. Felix Hurtado 5a Avenue 124 Miramar Havana Cuba President.

INTERNATIONAL CONGRESS OF PSYCHOLOGY Montreal Canada June 7-12 1954 For information write Prof. H. S. Langfeld, International Union of Scientific Psychology Eno Hall Princeton University Princeton N. J. U. S. A.

INTERNATIONAL CONGRESS OF RADIOLOGY Copenhagen Denmark July 19-25 Professor Flemming Norgaard 10 Oster Voldgade Copenhagen K Denmark Secretary General.

INTERNATIONAL CONGRESSES OF TROPICAL MEDICINE AND MALARIA Istanbul Turkey Aug. 28-Sept. 4 Professor Dr Ihsan Sükrü Aksel Tuncel Meydan, Beyoglu Istanbul Turkey General Secretary

INTERNATIONAL GERONTOLOGICAL CONGRESS London and Oxford England July 12-22, 1954 Prof. R. E. Tunbridge General Infirmary Department of Medicine The University Leeds England President

INTERNATIONAL LEPROSY CONGRESS Madrid Spain Oct. 3-10 Dr Felix Contreras Moreto 15 Madrid Spain Secretary

INTERNATIONAL NEUROLOGICAL CONGRESS Lisbon Portugal Sept. 7-12. Prof. Almeida Lima Avenida do Brazil 53 Lisbon, Portugal Secretary General.

INTERNATIONAL OFFICE OF DOCUMENTATION OF MILITARY MEDICINE Rome, Italy Oct. 14-18 Colonel Medecin Prof. A. Campana Office of the Ministero della Difesa Esercito Rome Italy Secretary

INTERNATIONAL PHYSIOLOGICAL CONGRESS Montreal Canada Aug. 31 Sept. 4 Dr A. S. V. Burgen Dept. of Physiology McGill University Montreal Canada Secretary

INTERNATIONAL PSYCHO-ANALYTICAL CONGRESS Bedford College Regents Park, London N.W.1 England July 26-30 Dr Ruth S. Eissler 285 Central Park West New York 24 N. Y. Hon. Secretary

INTERNATIONAL SOCIETY FOR THE STUDY OF BIOLOGICAL RHYTHMS Basle, Switzerland Sept. 18-19 For information write Prof. Dr F. Georgi Neurologische Universitäts-Poliklinik Solothurnstrasse 55 Basle Switzerland.

INTERNATIONAL VETERINARY CONGRESS Stockholm Sweden Aug. 9-15 Prof. Axel Isaksson Institute of Veterinary Medicine Stockholm 50 Sweden, Secretary

JOURNEES MEDICALES Paris France April 21-25 1954 For information write Secretariat of the Journées 12, rue Pierre-Geoffroy, Colombes (Seine) France

LATIN AMERICAN CONGRESS OF OBSTETRICS AND GYNECOLOGY Buenos Aires, Argentina Oct. 26-31

LATIN AMERICAN CONGRESS OF OTORHINOLARYNGOLOGY Caracas Venezuela, Feb. 21-25 1954 Dr Victorino Marquez Reveron Centro Medico Caracas, Venezuela, Secretary-General

PACIFIC SCIENCE CONGRESS Quezon City and Manila, Philippines Nov. 16-28 Dr Patrocinio Valenzuela College of Pharmacy University of the Philippines Quezon City Philippines Secretary-General.

PAN AMERICAN CONGRESS OF THE MEDICAL PRESS Buenos Aires Argentina. July 12-16 Secretaría del Congreso 763 Uruburu Buenos Aires Argentina.

PAN AMERICAN CONGRESS OF OTORHINOLARYNGOLOGY AND BRONCHESOPHAEOLOGY Mexico D.F. Mexico Feb. 28-March 4 1954

PAN AMERICAN MEDICAL WOMEN'S ALLIANCE Beekman Towers Hotel New York N. Y. Sept. 24-Oct. 1 Dr Ina Marsh 140 Linwood Ave. Buffalo N. Y. U. S. A. Registration Chairman

SECTIONAL MEETING AMERICAN COLLEGE OF SURGEONS London England May 17-19 1954 Dr Michael L. Mason 40 East Erie St., Chicago 11 Ill., U. S. A., Secretary

WORLD CONFERENCE ON MEDICAL EDUCATION British Medical Association House Tavistock Square W.C.1 London England Aug. 22-29 Secretariat World Medical Association 2 East 103d St. New York 29 N. Y. U. S. A.

WORLD CONGRESS OF THE WORLD CONFEDERATION FOR PHYSICAL THERAPY London England Sept. 7-12. Miss M. J. Neilson Chartered Society of Physiotherapy Tavistock House, South, Tavistock Square London, W.C.1 England Secretary

WORLD MEDICAL ASSOCIATION The Hague Netherlands Aug. 31-Sept. 7 Dr Louis H. Bauer 345 East 46th St. New York 17 N. Y., Secretary General.

DEATHS

Bachmeyer, Arthur Charles ☉ Loveland, Ohio, associate dean emeritus, Division of Biological Sciences, University of Chicago, and director emeritus of the university clinics, died at the Washington National Airport in Washington, D C, May 22, aged 66, of coronary occlusion. Dr Bachmeyer was born in Cincinnati Dec. 6, 1886. He received his doctor of medicine degree from the Medical Department of the University of Cincinnati in 1911. From 1911 to 1913 he served as intern and resident surgeon, as assistant, and later acting superintendent at the Cincinnati General Hospital. From 1914 to 1935 he was superintendent of the Cincinnati Tuberculosis Sanatorium and the Cincinnati General Hospital, from 1920 to 1935 professor of hospital administration, and from 1925 to 1934 dean at the University of Cincinnati College of Medicine. He was also affiliated with the Children's and Christian R. Holmes hospitals. At the University of Chicago, where he served as associate dean of the university's medical and biological division from 1935 until his retirement in 1951, Dr Bachmeyer served as director of the university's graduate program in hospital administration and as a member of the student selection committee of the medical school. He was also consultant to the university's 10 million dollar medical building program, including the Argonne Cancer Research Hospital, recently completed on the Midway campus by the Atomic Energy Commission. Since 1948 he had been vice-chairman of the Committee on Survey of Medical Education. Following his retirement from the university, he served as director of the commission on the financing of hospital care. During World War I he was a major in the medical officers reserve corps of the U S Army, and since 1919, had been a lieutenant colonel in the medical reserve corps. Dr Bachmeyer was a director of the board of the Chicago Blue Cross plan, and from 1946 treasurer of the American Medical Congress and the American Hospital Association, of which he was president in 1926. The 1950 recipient of the American Hospital Association award of merit, Dr Bachmeyer served as director of study of the Commission on Hospital Care, 1944-1946. He was a charter member and in 1940 president of the American College of Hospital Administrators, and in 1951 president of the Association of American Medical Colleges, of which he was treasurer for many years. He was a member of the Institute of Medicine of Chicago, American Public Health Association, American Association for the Advancement of Science, Chicago Hospital Council, Chicago Hospital Service Corporation, serving as a member of the board, and since 1948 on the medical advisory committee of National Security Resources Board, and was a member of Alpha Kappa Kappa and Alpha Omega Alpha. He was awarded the honorary doctor of science degree from the University of Cincinnati in 1935 and the University of Nebraska in 1949. Dr Bachmeyer was chairman of the editorial board of *Modern Hospital* and joint author of "The Hospital in Modern Society" (1943) and "Hospital Trends and Developments, 1940-1946" (1948).

Hayne, James Adams ☉ Congaree, S C, born in Baltimore, March 18 1872, Medical College of the State of South Carolina, Charleston, 1895, state health officer, and secretary of the South Carolina State Board of Health, from 1911 to 1944, when he retired to become public health education director for the department, served as collaborating epidemiologist for the U S Public Health Service, chairman of the Section on Preventive and Industrial Medicine and Public Health of the American Medical Association, 1919-1920, and member of its House of Delegates in 1921, past president of the Columbia Medical Society, South Carolina Medical Association, and the Conference of State and Provincial Health Authorities of North America, member of the American Public Health Association, of which he was executive secretary, formerly professor of public health administration at his alma mater, veteran of the Spanish American War, died May 11, aged 81, of chronic myocarditis.

Nesbit, William Wesley ☉ Medical Director, U S Public Health Service, Seattle, born in Roxbury, Pa, March 26, 1902, Jefferson Medical College of Philadelphia, 1926, entered the public health service as an intern in 1926 at the Public Health Service Hospital in Norfolk, Va., served as medical officer in charge of Service hospitals at New Orleans and Galveston, Texas, at one time chief medical officer of the U S Coast Guard Academy in New London, Conn., during World War II served on the staff of the headquarters fleet of Admiral Chester W. Nimitz and for his service in connection with establishing medical operations of the U S Naval Military Government for occupied areas in the Pacific, was awarded the Bronze Star; since September, 1952, in charge of the U S Public Health Service Hospital in Seattle; died in Washington, D C, May 7, aged 51, of coronary insufficiency.

Barksdale, John Woodson ☉ Jackson, Miss, born in Vaiden, Miss, in 1876, Birmingham Medical College, 1899, member of the Founders Group of the American Board of Surgery; member of the Southern Surgical Association, fellow and formerly a member of the board of governors of the American College of Surgeons, in 1922 Member of the House of Delegates of the American Medical Association, past president of the Mississippi State Medical Association, served during World War I, affiliated with St. Dominic's Hospital in Jackson, Winona (Miss) Infirmary, and the Mississippi State Tuberculosis Sanatorium in Sanatorium, division surgeon Illinois Central Railroad, died May 9, aged 76, of carcinoma.

Lowman, John Bodine ☉ Johnstown, Pa., born in Johnstown, Pa, Nov 19, 1874, Jefferson Medical College of Philadelphia, 1895, member of the House of Delegates of the American Medical Association in 1910, 1911, and 1912 member of the founders group of the American Board of Surgery, fellow of the American College of Surgeons, president of the Cambria County Medical Society in 1904 formerly treasurer of the Medical Society of the State of Pennsylvania, served during World War I, affiliated with Conemaugh Valley Memorial and Mercy hospitals, chief surgeon for the Pennsylvania Railroad; died in St. Francis Hospital, Miami Beach, Fla., April 5, aged 78, of coronary sclerosis.

Grosfeld, William Jacob ☉ New York, born in New York City Sept 15 1894, Long Island College Hospital, Brooklyn, 1921, fellow of the American College of Chest Physicians and the American Trudeau Society and Morgan County (Ala.) Medical Society past president of the Alabama Trudeau Society, at one time clinician for the board of health of Pater son, N J, and on the staff of the Valley View Sanatorium, served on the Morgan County (Ala.) Board of Health and Census for many years medical director of the Morgan County Tuberculosis Sanatorium in Decatur, Ala. now known as District No 1 Tuberculosis Sanatorium, and the Tri Counties Tuberculosis Sanatorium in Scottsboro Ala., died suddenly in Gadsden, Ala., May 19, aged 58, of cerebral thrombosis.

Haskins, John Bunyan ☉ Chattanooga, Tenn., University of Tennessee Medical Department, Nashville, 1907 member of the Southeastern Surgical Congress and the National Gastroenterological Association, fellow of the American College of Surgeons member of the staffs of the Erlanger and Memorial hospitals, president of the board of the Citizens Savings and Loan Association, member of the board of the Chattanooga Federal Savings and Loan Association and of the Medical Arts Realty Company died May 5, aged 71, of cerebral thrombosis.

Lyon, B B Vincent, Philadelphia Johns Hopkins University School of Medicine, Baltimore, 1907, at one time on the faculty of Jefferson Medical College, specialist certified by the American Board of Internal Medicine, member and past president of the American Gastroenterological Association, fellow of the American College of Physicians, served in

France during World War I, formerly affiliated with Jefferson Medical College Hospital, died in Washington, D C, May 20, aged 73, of coronary thrombosis

Barding, Lewis Daniel ✶ East Moline, Ill, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois 1911, fellow of the American College of Surgeons, member and past president of the staff of Moline Public Hospital affiliated with St Anthony's and Moline Lutheran hospitals died in the University Hospitals, Iowa City, April 14, aged 65, of cerebral hemorrhage

Bradley, Isabel Agnes, Claremont, Calif, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1899, member of the American Psychiatric Association, retired in 1945 as assistant superintendent of the Columbus State Hospital, died April 7, aged 88

Brumfield, Jesse E., Tylertown, Miss, Medical Department of Tulane University of Louisville, New Orleans, 1901, formerly superintendent of the State Colony for the Feeble-minded at Ellisville, died April 1, aged 76, of liver abscess and biliary obstruction

Buck, Thomas D'Arcy ✶ Rochester, N Y, University of Toronto Faculty of Medicine, Toronto, Canada, 1904, served during World War I, affiliated with Monroe County Infirmary, Park Avenue Hospital, and the Highland Hospital, where he died March 23, aged 75, of cerebral vascular accident

Buff, John Thomas, Casar, N C, North Carolina Medical College, Charlotte, 1908, died March 14, aged 79, of arteriosclerotic heart disease

Bunker, Henry Alden, New York City, Harvard Medical School, Boston, 1917, member of the American Psychoanalytic Association and the American Psychiatric Association, assistant director, New York State Psychiatric Institute from 1922 to 1929, an associate editor of the *Psychoanalytic Quarterly* died March 19, aged 63

Bunnell, Frederick Norman ✶ Barnegat, N J, College of Physicians and Surgeons, Baltimore, 1905 served during World War I, died in Delray Beach, Fla, March 25, aged 71, of arteriosclerotic heart disease

Burke, Michael Francis ✶ Natick, Mass, Harvard Medical School, Boston, 1896, fellow of the American College of Surgeons, medical examiner of the eighth Middlesex District, affiliated with Carney Hospital in Boston, Newton Wellesley Hospital in Newton Lower Falls, Glover Memorial Hospital in Needham, Framingham (Mass) Union Hospital, and Lawrence Memorial Hospital, Medford, consulting surgeon, Leonard Morse Hospital, died April 9, aged 80, of cirrhosis of the liver

Butler, John Dennison ✶ Newmarket, N H, Baltimore Medical College, 1907, died in Exeter March 5, aged 72

Corbell, Robert Lawrence ✶ Portsmouth, Va, Medical College of Virginia, Richmond, 1898, for many years coroner of Portsmouth, affiliated with Maryview and Kings Daughters' hospitals, died March 24, aged 80, of carcinoma of the lung and arteriosclerotic heart disease

Coscia, Enrico Giordano Carl ✶ Pittsburgh University and Bellevue Hospital Medical College, New York, 1927, died March 20, aged 54, of coronary occlusion

Cotton, Stanley M ✶ Goldsmith, Ind., Medical College of Indiana, Indianapolis, 1905, at one time a druggist, served as president of the Tipton County Medical Society, affiliated with Mercy Hospital, Elwood, St Joseph Memorial Hospital in Kokomo, and Tipton Memorial Hospital, Tipton, where he died April 9, aged 75, of cerebral hemorrhage.

Cox, Joseph Burnside, Evansville, Ind, Louisville (Ky) Medical College, 1901, served during World War I, formerly affiliated with the Veterans Administration in Louisville, Ky, died in the Deaconess Hospital March 27, aged 76, of coronary occlusion

Culbert, Milo Herman ✶ Medina, N D, Northwestern University Medical School, Chicago, 1910, at one time affiliated with the board of health in Chicago, died in Trinity Hospital, Minot, March 12, aged 67, of coronary occlusion

Dunn, Joseph J, Cleveland, Western Reserve University Medical Department, Cleveland, 1900, served on the staff of St Alexis Hospital, died May 19, aged 78, of coronary thrombosis

Eames, Earl ✶ Stirling City, Calif, Rush Medical College, Chicago, 1917, member of the Idaho State Medical Association, died in San Anselmo May 1, aged 62, of arteriosclerotic heart disease

Earnshaw, Henry Culp ✶ Bryn Mawr, Pa, University of Pennsylvania Department of Medicine, Philadelphia, 1903, served in France during World War I, on the staff of the Bryn Mawr Hospital, died May 22, aged 72, of cerebral hemorrhage

Eisenberg, Joseph Abram ✶ Dayton, Ohio, Marquette University School of Medicine, Milwaukee, 1933, member of the American Academy of General Practice, served during World War II, affiliated with St Elizabeth Hospital, Miami Valley Hospital, and the Good Samaritan Hospital, where he died April 29, aged 44, of coronary thrombosis

Estlick, Richard Edison ✶ Fort Wayne, Ind, Indiana University School of Medicine, Indianapolis, 1935, specialist certified by the American Board of Otolaryngology, member of the American Academy of Ophthalmology and Otolaryngology, served during World War II, on the staffs of the Methodist Hospital and Lutheran Hospital, where he died April 6, aged 42, of infectious hepatitis

Ferguson, Omer Earl ✶ Owensboro, Ky, University of Buffalo School of Medicine, 1914, formerly practiced in Cloverport, where he was mayor for two terms, died in Owensboro-Daviess County Hospital April 26, aged 64, of carcinoma of the stomach

Fields, Harold Ross ✶ Johnson, Kan, University of Kansas School of Medicine, Kansas City, 1945, served during World War II, died in Ulysses, March 20, aged 34, of pulmonary embolism

Gamon, Robert Speer ✶ Camden, N J, University of Pennsylvania School of Medicine, Philadelphia, 1921, specialist certified by the American Board of Surgery fellow of the American College of Surgeons served during World War I, past president of the Camden County Medical Society, on the staff of the Zurbrugg Hospital in Riverside and the Cooper Hospital, died May 19, aged 57

Ginsburg, Samuel Simon ✶ Visalia, Calif, College of Physicians and Surgeons, Los Angeles, 1913, died in San Francisco May 8, aged 72

Golden, Isaac John King ✶ Chicago (licensed in Illinois in 1898), on the staff of the American Hospital, died May 19, aged 81

Goldwasser, Herbert Valentine ✶ St Louis, Washington University School of Medicine, St Louis, 1929, affiliated with Jewish Hospital, died March 29, aged 46, of heart disease

Good, Barton Lester ✶ Van Wert, Ohio, the Hahnemann Medical College and Hospital, Chicago, 1904, served during World War I, affiliated with Van Wert County Hospital, where he died April 16, aged 76, of carcinoma of the sigmoid

Gregory, Alice, New York City; Cornell University Medical College, New York, 1902, served with the French Army during World War I, trustee of the New York Infirmary for many years, died in the New York Hospital April 8, aged 76, of arteriosclerotic heart disease and gastrointestinal hemorrhage

Grice, Harold Israel ✶ Schenectady, N Y, Western Reserve University School of Medicine, Cleveland, 1929, affiliated with Ellis Hospital, where he died April 23, aged 51, of atrophic cirrhosis of the liver and diabetes mellitus

Grossman, Frederick Maximilian ✶ Seattle, Masarykova Universita Fakulta Lékařská, Brno, Czechoslovakia, 1928, formerly affiliated with Indian Service, specialist certified by the American Board of Otolaryngology, died May 12, aged 49

Gurjian, Leon Kevork ⊕ Providence, R I, Tufts College Medical School, Boston, 1917, served during World Wars I and II, affiliated with Veterans Administration, died March 17, aged 63, of coronary disease

Harris, William ⊕ New York City, Harvard Medical School, Boston, 1919, clinical professor of radiology at Columbia University College of Physicians and Surgeons, specialist certified by the American Board of Radiology, member of the American Roentgen Ray Society, Radiological Society of North America, and the American College of Radiology, treasurer of the New York Cancer Society, on the staff of the Morrisania Hospital and Mount Sinai Hospital, where he died April 7, aged 58, of malignant hypertension

Harwood, Robert Ellyson ⊕ Gainesville, Ala, Medical College of Alabama, Mobile, 1900, served during World War I, died March 23, aged 90, of intestinal hemorrhage and cancer

Heacox, Frank L ⊕ Auburn, N Y, Jefferson Medical College of Philadelphia, 1902, for many years physician at Auburn State Prison, where he was at one time acting warden, served as superintendent of the State Training School for Women in Albion, and as chief physician at the Eastern New York Reformatory at Napanoch, died in Poughkeepsie April 22, aged 77, of arteriosclerotic heart disease

Heacock, James Howard ⊕ New York City, Homeopathic Medical College of Missouri, St. Louis, 1907, Eclectic Medical College of the City of New York, 1910, member of the American Society of Anesthesiologists, instructor in surgery and assistant in the department of surgery at the New York Polyclinic Medical School and Hospital, died March 6, aged 69, of coronary thrombosis

Helmes, Lloyd Oscar ⊕ Oshkosh, Wis, Washington University School of Medicine, St. Louis, 1919, killed Feb 12, aged 63, when a private plane in which he and his wife were traveling crashed and burned just after take-off from Morrow Field in Colton, Calif

Hill, Frank Albert ⊕ Ormond, Fla, Northwestern University Medical School, Chicago, 1902, member of the Illinois State Medical Society, died in Ridgewood Hospital, Daytona Beach, March 10, aged 76, of posterior myocardial infarction

Hills, Henry Monroe ⊕ Lamoni, Iowa, Rush Medical College, Chicago, 1900, on the staff of the Decatur County Hospital in Leon, died April 27, aged 80, of heart failure

Hoey, Charles Francis ⊕ Phoenix, Ore, St. Louis University School of Medicine, 1937, on the staffs of Community and Sacred Heart hospitals, died in San Francisco March 14, aged 48, of hypertension and uremia

Hollingsworth, Robert E, Mount Airy, N C, University College of Medicine, Richmond, 1898, died in the North Carolina Baptist Hospital, Winston Salem, March 26, aged 79, of coronary occlusion

Holmes, William Elsworth, Brooklyn, New York, Homeopathic Medical College and Flower Hospital, New York, 1923, died in Maumondes Hospital March 28, aged 54, of coronary insufficiency

Hutchinson, William G ⊕ Birmingham, Mich, Detroit College of Medicine, 1897, formerly on the faculty of his alma mater, served on the Michigan Crippled Children's Commission, died in Harper Hospital, Detroit, March 26, aged 76

Jordan, Calvin Cleveland, Highland Park, Mich, University of Michigan Homeopathic Medical School, Ann Arbor, 1916, died May 10, aged 69, of acute coronary thrombosis

Kastner, Alfred L ⊕ Wauwatosa, Wis, Wisconsin College of Physicians and Surgeons, Milwaukee, 1902, associate clinical professor emeritus of pediatrics at Marquette University School of Medicine in Milwaukee, where he was on the staff of the Children's Hospital and Milwaukee Hospital, member of the American Academy of Pediatrics, died April 5, aged 74

Kelly, Bernard V, Baltimore, College of Physicians and Surgeons, Baltimore, 1913, died in the University Hospital, April 14, aged 64

Kenner, Joseph J, Lawrence, Kan, Lincoln Medical College of Cotner University, 1902, died May 6, aged 82, of myocardial failure and hypertension

Kosminsky, Leonce Joel ⊕ Texarkana, Ark, University of Maryland School of Medicine, Baltimore, 1906, member of the House of Delegates of the American Medical Association, 1934-1935, 1946-1948, past president of the Miller County Medical Society and the Arkansas Medical Society, formerly secretary of the Arkansas State Medical Board, for many years local surgeon for the Texas and Pacific Railway, died May 2, aged 76, of acute coronary occlusion

Latimer, Marvin Luther ⊕ New Haven, Conn, Vanderbilt University School of Medicine, Nashville, Tenn, 1932, associate clinical professor of otolaryngology at Yale University School of Medicine, specialist certified by the American Board of Otolaryngology, member of the American Academy of Ophthalmology and Otolaryngology, affiliated with New Haven Hospital, where he died in the operating room after completing a tonsil and adenoid operation, April 17, aged 45

Lebowitz, Joseph Joessel ⊕ Chicago, Northwestern University Medical School, Chicago, 1914, served as an associate in the department of surgery at his alma mater, fellow of the American College of Surgeons, a captain in the medical corps of the U S Army during World War I, president of the board of the South Chicago Community Hospital, where he died May 13, aged 62, of coronary thrombosis

McCarthy, Walter Rochefort ⊕ Brooklyn, Georgetown University School of Medicine, Washington, D C, 1924, deputy superintendent of Kings County Hospital, died May 16, aged 54, of heart disease

McKenna, Paul King ⊕ Mount Sterling, Ky, Kentucky School of Medicine, Louisville, 1907, for many years county health officer, died Feb 20, aged 70, of arteriosclerotic heart disease

McKinney, Ralph Frank ⊕ Warrensburg, Mo, St. Louis University School of Medicine, 1928, killed in a tractor accident on his farm near Warrensburg April 20, aged 49

McKinney, Walter L, Sidney, Ohio, Eclectic Medical Institute, Cincinnati, 1905, died in Piqua (Ohio) Memorial Hospital March 18, aged 80

McKnight, Clarence J, Wichita, Kan, Kansas City (Mo) Hahnemann Medical College, 1912, died in St. Francis Hospital May 20, aged 66, of carcinoma of the rectosigmoid

McLaughlin, James Daniel ⊕ Blue Springs, Ala, University of Alabama School of Medicine, 1910, for many years chairman of the Blue Springs High School board of trustees, died in Jefferson Hillman Hospital, Birmingham, May 18, aged 73, of coronary sclerosis

Meyer, Fritz Max, Springfield, N J, Friedrich Wilhelms Universitat Medizinische Fakultat, Berlin, Prussia, Germany, 1897, died in Berlin, Germany, May 17, aged 78, of Paget's disease while on a lecture tour

Middleton, Edward Duncan, Washington, D C, State University of Iowa College of Medicine, Iowa City, 1904, commissioned officer in the U S Public Health Service Reserve from May 3, 1921 to Jan 31, 1945, veteran of the Spanish American War and World War I, during World War II medical officer with Maritime Service from 1939 to 1945, died in Mount Alto Hospital April 18, aged 74, of coronary thrombosis

Miller, Riley H, Ulysses, Kan, College of Physicians and Surgeons, Medical Department of the Kansas City University, Kansas City, Kan, 1902, also a pharmacist, an officer during World War I, served a term in the state legislature, for many years county health officer, county offices held included that of probate judge and coroner; died April 25, aged 79, of carcinoma of the prostate and uremia

Nail, Frank Edgar, Franklin, Neb, Ensworth Medical College, St. Joseph, Mo, 1907, served during World War I, for many years county physician, died May 8, aged 72, of injuries received in an automobile accident

Ogg, Francis Willard ⊕ Hot Springs, S D, University of Kansas School of Medicine, Kansas City, Kan., 1920, served during World War II, manager of the VA Center, died April 25, aged 58, of hypertensive cardiovascular renal disease

Perez, Joseph ⊕ DeLand, Fla., Universidad de Valencia Facultad de Medicina, Spain, 1917, died in Fish Memorial Hospital March 6, aged 60, of cerebral hemorrhage

Perry, Eugene Beauharnois ⊕ Chicago, Rush Medical College, Chicago, 1917, assistant professor of urology at Northwestern University Medical School, specialist certified by the American Board of Urology, member of the American Urological Association, fellow of the American College of Surgeons, on the staff of Wesley Memorial Hospital, where he died May 11, aged 59, of coronary occlusion

Prideau, William Albert ⊕ Twin Rocks, Pa., Medico-Chirurgical College of Philadelphia, 1899, for many years member of the Black Lick Township School Board, of which he was president, died in the Memorial Hospital, Johnstown, May 7, aged 80

Ramsey, Byron Lowe, Butler, Pa., University of Pittsburgh School of Medicine, 1908, died in the Butler County Memorial Hospital March 18, aged 72, of intestinal obstruction and peptic ulcer

Reld, John Joseph Jr ⊕ New York City, Fordham University School of Medicine, New York, 1911, member of the Association for Research in Ophthalmology, honorary surgeon for the Police Department, served during World War I, for many years affiliated with the Lenox Hill Hospital, died in Central Valley, N Y, May 20, aged 66

Selig, Lew, Chicago, Chicago Medical School, 1922, died April 15, aged 69, of cancer

Silverberg, Morris Harold ⊕ San Francisco, University of California Medical School, San Francisco, 1921, specialist certified by the American Board of Obstetrics and Gynecology, formerly instructor of obstetrics and gynecology at his alma mater; on the staff of the Mount Zion Hospital, on the courtesy staffs of the Children's Hospital and the French Hospital, died April 17, aged 56, of congestive heart failure

Smith, DeSausure Dugas ⊕ Swainsboro, Ga., University of Georgia Medical Department, Augusta, 1908, member of the American Academy of General Practice, died at Emory University, March 15, aged 67, of cardiac failure

Smith, Paul James, Fairburn, Ga., University of Georgia Medical Department, Augusta, 1912, died March 4, aged 70, of coronary occlusion

Smith, Sidney Bertrand, Overall, Tenn., University of the South Medical Department, Sewanee, 1898, for many years county health officer; on the staff of the Rutherford County Hospital, died in Inverness, Fla., March 23, aged 81, of cerebral thrombosis

Stapler, Andrew H., Pembroke, Ga., Vanderbilt University School of Medicine, Nashville, Tenn., 1883, University of Nashville Medical Department, 1884, died in Keysville April 5, aged 91, of arteriosclerotic heart disease

Stefanelli, Eugene Renna, Newark, N J, University of Vermont College of Medicine, Burlington, 1921, died April 10, aged 55, of coronary thrombosis and diabetes mellitus

Stiefel, Benjamin Wolf ⊕ New York City, Columbia University College of Physicians and Surgeons, New York, 1890, formerly affiliated with St. Bartholomew Clinic, from 1894 to 1902 clinical assistant in obstetrics and gynecology, Vanderbilt Clinic, died April 17, aged 87, of myocardial failure

Strumwasser, Samuel, New York City, Columbia University College of Physicians and Surgeons, New York, 1916, served in France during World War I, died March 8, aged 61

Taylor, Mervyn Ross ⊕ Wynnewood, Pa., Jefferson Medical College of Philadelphia, 1900, formerly practiced in Philadelphia, where he was on the faculty of Temple University School of Medicine and for many years medical officer for the Bell Telephone Company, died in the Bryn Mawr (Pa.) Hospital May 1, aged 75, of coronary occlusion.

Thorne, Nathan, Moorestown, N J, Hahnemann Medical College and Hospital of Philadelphia, 1898, died in the Pennsylvania Hospital, Philadelphia, Feb. 20, aged 78, of bronchopneumonia, generalized arteriosclerosis, and paralysis agitans

Trick, Harold William ⊕ Akron, N Y, University of Toronto Faculty of Medicine, Toronto, Canada, 1925, served during World War II, died in Henderson, Nev., April 19, aged 51, of coronary thrombosis and hypertension

Veale, Emory Oslin Sr ⊕ Arnoldsville, Ga., Georgia College of Eclectic Medicine and Surgery, Atlanta, 1901, died in the Athens (Ga.) General Hospital March 10, aged 77, of subarachnoid hemorrhage

Wiley, Arthur Goodwin ⊕ Bar Mills, Maine, Medical School of Maine, Portland, 1903, for many years county physician, consulting surgeon at the Webber Memorial Hospital in Biddeford, medical director of the Buxton Hollis Hospital, where he died April 28, aged 79, of congestive heart failure

Williams, David, Logan, Iowa, Omaha Medical College, 1894, died April 2, aged 86, of coronary thrombosis

Wilson, Pitt Stevens ⊕ Muskegon, Mich., College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907, past president of the Muskegon County Medical Society, veteran of the Spanish American War; president of the Muskegon County Tuberculosis Association, affiliated with Mercy Hospital and for many years affiliated with Hackley Hospital, where he died March 31, aged 74, of cerebral thrombosis and arteriosclerosis

Wingfield, Hudson Mason ⊕ Richmond, Va., Medical College of Virginia, Richmond, 1934, member of the American Academy of General Practice and the Industrial Medical Association, resigned in 1945 as physician and surgeon of the Richmond Fire Department, member of the board of directors of the Richmond Academy of Medicine, died March 21, aged 47

Wittwer, Ernest Alvin ⊕ Bay City, Mich., Saginaw (Mich.) Valley Medical College, 1900, on the staff of the Mercy Hospital, died March 20, aged 77, of coronary occlusion

Wood, Kenneth ⊕ Leslie, Ga., Atlanta College of Physicians and Surgeons, 1913, died March 4, aged 62, of myocardial infarction

Woodhouse, Floyd Eugene ⊕ Elmira, N Y, University of Wooster Medical Department, Cleveland, 1891, an Associate Fellow of the American Medical Association, affiliated with St. Joseph's Hospital and Arnot Ogdan Memorial Hospital, where he died Feb. 1, aged 84, of coronary occlusion

Zimmerman, Ira Melvin ⊕ Williamsport, Md., Baltimore Medical College, 1913, served during World War I, on the staff of Washington County Hospital, Hagerstown, affiliated with City Hospital and King's Daughters Hospital, Martinsburg, W Va., died March 17, aged 61, of injuries received in an automobile accident

DIED WHILE IN MILITARY SERVICE

Hull, Richard Barnett ⊕ Springfield, Ill., born in Zanesville, Ohio, March 14, 1921, Northwestern University Medical School, Chicago, 1946, interned at Evanston (Ill.) Hospital, reported for active duty on April 10, 1946, following his first duty assignment at the Naval Air Station, Grosse Ile, Mich., served at Naval Training Center, Great Lakes, Ill., as medical officer aboard the USS Manatee and at the Naval Hospital, Portsmouth, Va., released to inactive duty on Dec. 31, 1947, served a residency in internal medicine at the University of Chicago Clinics, Chicago, following this, became an associate staff member of the Memorial and St. John's hospitals, volunteered and was recalled to active duty in August, 1952, lieutenant M C, U S Naval Reserve, assigned to the USS Haven, hospital ship operating in Korean waters, died aboard the ship May 19, aged 32, of injuries received in a helicopter accident

GOVERNMENT SERVICES

ARMY

Ten Postgraduate Short Courses—A series of 10 short post graduate courses will be conducted for Army Medical Corps officers during the fiscal year 1953-1954. They also are open to a number of qualified civilian physicians. The courses are designed to help medical officers in outlying installations keep abreast of recent medical advances. The courses, listed according to the place where they will be given, are as follows: Brooke Army Medical Center, clinical laboratory course (March 15-19, 1954), Fitzsimons Army Hospital, symposium on pulmonary diseases (Sept 21-25, 1953) and clinical electrocardiography and recent advances in cardiovascular diseases (Nov 9-14, 1953), Letterman Army Hospital, rehabilitation techniques in neuromuscular diseases and disabilities (April 5-10, 1954), Armed Forces Institute of Pathology, forensic pathology (Nov 2-6, 1953) and pathology of the oral regions (March 8-12, 1954), and Walter Reed Army Medical Center, seminar in urology (Sept 7-9, 1953), symposium on circulation and homeostasis (Oct 5-9, 1953), symposium on physical and mental health standards (April 16-17, 1954), and recent advances in medicine and surgery, including psychosomatic aspects of medicine and surgery (April 19-30, 1954).

Physicians who are board-certified or board-qualified, chiefs or assistant chiefs of services at hospitals, and officers well advanced in the study of their specialty are eligible to attend any of the courses. Officers partially qualified in the specialty, officers with a special interest in the specialty, ward officers, and dispensary surgeons responsible for medical treatment in this specialty are eligible to attend the courses at Brooke Army Medical Center, Fitzsimons Army Hospital, the Armed Forces Institute of Pathology, and the symposium on circulation and homeostasis at Walter Reed Army Medical Center.

Applications for any course must be submitted at least six weeks prior to the opening date. Army medical officers on active duty and full-time Civil Service physicians at Army installations should forward their applications through channels to the Surgeon General, Department of the Army, Washington 25, D C, Attention Personnel Division. Officers having second priority (not on active duty) should forward their applications through channels to the Army Area Commander to whose jurisdiction they are assigned. National Guard medical officers should apply under current National Guard regulations, forwarding their applications to the National Guard Bureau, Washington 25, D C. Physicians from other federal agencies and other civilian physicians are advised to forward their applications to the commander of the hospital or installation conducting the course. In submitting requests for admission applicants should indicate (1) their name, rank, service number, and primary and secondary MOS (military occupational specialty), (2) organization and station, (3) title of course desired, (4) list of all other courses attended during the past two years with dates of each, and (6) category and expiration date.

Medical Books for Korea—On Sept 6, 1952, Brig Gen (then Colonel) L. Holmes Ginn Jr, Eighth Army Surgeon, appealed to THE JOURNAL for donations of medical books and journals to be used in renewing the library of war ravaged Severance Hospital and Medical School in Seoul, Korea. In conjunction with this appeal, medical personnel in the Eighth Army contributed to a Severance Hospital fund to cover costs of transportation. The response to this appeal has been generous. More than 10,000 books and journals have been received from persons, organizations, and publishers, and the library has been restored to usefulness. However, contributions continue to arrive and the need remains urgent.

Severance Hospital, Seoul's leading medical center, maintains one of six medical schools in Korea. Operating with extremely limited facilities, they are training over 100 future

physicians as well as providing essential civilian medical care. In observance of the center's 69th anniversary, May 15, the hospital newspaper expressed the deep gratitude of the students and the Korean people to General Ginn and the United Nations medical personnel in Korea for their help in obtaining badly needed books and supplies.

Personal.—Capt Robert H. Felix of Chicago has been cited by the U S Army Forces, Far East, for the Army's Commendation Ribbon in recognition of his research into the effects of epidemic hemorrhagic fever encountered in Korea.

PUBLIC HEALTH SERVICE

Dining Car Sanitation.—On June 3 the Erie Railroad received a special citation as the first major railroad whose dining cars have all been awarded the Certificate of Sanitation under the cooperative inspection program between the railroads and Public Health Service. To achieve the certificate a dining car must rate at least 95% on an inspection conducted by a P H S dining-car inspector. The inspection is based on a check of 128 separate items, involving both basic construction of the car (particularly the kitchen and the pantry) and maintenance of sanitation. Several years ago, in cooperation with representatives of the railroads, the Public Health Service established a set of high standards for dining-car sanitation. All railroads operating dining cars have been working toward meeting these specifications. Each individual dining car that does so receives the Certificate of Sanitation.

Treatment Centers for Emotionally Disturbed Children.—The Children's Bureau of the Federal Security Agency (now the Department of Health, Education, and Welfare) recently issued a directory entitled "Residential Treatment Centers for Emotionally Disturbed Children," which is said to be the first directory of its type published in the United States. The 78 page booklet lists 36 agencies for children who cannot be helped in their own or foster family homes or in the usual institutions. New York State has eight, Illinois, six, Ohio, four, Michigan, Mississippi, Kansas, Minnesota, and Washington, two each, and New Jersey, Maine, California, Maryland, Pennsylvania, Connecticut, Rhode Island, and Virginia, one each.

Dr Johansen Retires.—After 29 years of service at the National Leprosarium at Carville, La., Dr Frederick A. Johansen retired on June 1. This 450 bed U S Public Health Service hospital is the only institution in continental United States devoted exclusively to the care and treatment of patients with Hansen's disease, and Dr Johansen has guided installation and organization of the hospital's rehabilitation services and community activities. He is a diplomate of the American Board of Preventive Medicine and Public Health. His successor is Dr Eddie M. Gordon, a native of New Orleans, who comes to Carville from Chicago, where he has been in charge of the local U S Public Health Service hospital. Dr Gordon joined the Public Health Service after graduating from Tulane University School of Medicine in 1927.

VETERANS ADMINISTRATION

Personal.—Dr Sandor Rado, clinical professor of psychiatry and director of the Psychoanalytic Clinic for Training and Research at Columbia University, conducted a seminar on the differential diagnosis of schizophrenia, psychoneurosis, and personality disorders for the members of the hospital staff of the VA Hospital, Northport, Long Island, N Y, on May 21, 1953.

FOREIGN LETTERS

CHILE

Congress on Rheumatic Diseases.—The first Chilean Congress on Rheumatic Diseases was held in the Termas de Pami mavida on Nov 28-29, 1952. About 70 rheumatologists, internists, orthopedic surgeons, endocrinologists, neurosurgeons, neurologists, and psychiatrists were present, as well as the Minister of Health, Dr Waldemar Coutts, and other medical administrative authorities.

Painful Shoulder.—C J Meredith and C Lackington discussed "Medical Aspects of Painful Shoulder," reporting 160 cases, with a critical review of the literature. They distinguished three forms: (a) secondary or surgical forms such as that due to fracture, (b) a symptomatic form which is present in many cases of rheumatoid arthritis and in some cases of gout and spondyloarthritis, and (c) idiopathic forms, representing 8.5% of all cases seen in an arthritis clinic. They stress the importance of metabolic changes that probably underlie the onset of the syndrome of a painful shoulder. These patients are particularly subject to fibrositis and osteoarthritis as well as low back pain and sciatica. On this basis, plus the histological changes observed in the soft tissues, they suggest that painful shoulder may be tentatively classified as a collagen disease. They formulate some possible objections to this hypothesis, such as the frequent association of painful shoulder with diabetes (9.4% in this series) and with diseases of the chest (notably pulmonary tuberculosis). The pathogenic mechanisms involved are complex and imperfectly understood. They deprecate the attempt, on clinical grounds, to formulate precise anatomical diagnoses such as capsulitis or tendinitis. The literature suggests in any case a lack of exact correlation between the anatomic changes and the clinical picture, and anatomic names create confusion in a syndrome whose clinical and evolutionary aspects are essentially constant.

Zeldis and Cerda reported 57 cases of painful shoulder due to local nonarticular causes, which were analyzed as follows: The diagnosis was frozen shoulder in 25 cases, bicipital tenosynovitis in 12, supraspinous tenosynovitis in 16, and incomplete rupture of the supraspinous tendon in 1. The cause was not diagnosed in three cases.

Achurra and Lake reported 52 cases of painful shoulder considered from the surgical point of view in which the causes were diagnosed as follows: acute subdeltoid bursitis in one case, tuberculous subdeltoid bursitis in one, bicipital tendinitis in two, periarthritis in six and osteoarthritis in one. The cause was not diagnosed in seven cases.

Lozada and Zanartu reported six cases of the shoulder hand syndrome as described by Stenbrocker. Stellate ganglion block was tried in three cases, with indifferent effects on mobility although a decrease in pain was observed. The authors feel that this treatment is indicated only in stage 1 of the process. Later cortisone was administered in four cases in initial doses of 100 to 300 mg intramuscularly daily, the doses were rapidly decreased to 75, 50, or 35 mg and given for two to three months. This treatment together with kinesotherapy was uniformly successful in all cases, although untoward side-effects appeared in some (including depression, insomnia, palpitations, and moon face) until administration of the hormone was discontinued.

Discussion of the papers on painful shoulder was presided over by an Argentine guest, Dr Guido Costa Bertani, president of the Argentinean Society of Rheumatological studies, who summarized the comments.

Vitamin B₁₂ in Arthrosis.—Dr Oscar Melendez and associates studied the action of vitamin B₁₂ in 32 patients with arthrosis who were from 42 to 73 years old. The patients re-

ceived intramuscular injections of 100 µg per week of vitamin B₁₂, with a maximum of five doses. Good results were obtained in 21 cases, fair results in 6, and no response in 5. In 28 cases a marked improvement in general well being was observed. The majority of the patients who benefited from the therapy were in good condition after one month of observation.

Psychogenic Rheumatism.—The psychogenic factors that influence rheumatism were studied by Dr A Arcaya. A total of 43 cases of rheumatoid arthritis were studied in the psychiatric department of the Van Buren Hospital. The author found strong evidence to support the idea that the appearance of acute disease was often associated with psychogenic factors. Study of the personality of such patients is important, and good psychotherapy will do much for them.

Frontoparietal Radiation.—Prof M Hermosilla and L Corona and associates read a paper on "Irradiation of the Frontoparietal Zone in Rheumatoid Arthritis." They studied 16 patients and observed improvement in the majority. The authors' explanation is that in these patients modifications of the vegetative mechanisms of the diencephalon affect the articular process by neuroendocrine mechanisms.

Scleroderma.—Dr R Tellez and co-workers discussed a study on scleroderma. Dr Tellez is inclined to believe that a predisposition to scleroderma is characterized by a neurotrophic imbalance due to alterations of the vegetative mechanisms of the diencephalon. Anoxia, which is secondary to chronic arteriolar vasoconstriction, increases the alkalinity of the interstitial fluid and causes, among other things, calcinosis. To neutralize the alkalinity, the authors administered ammonium chloride and corticotropin (ACTH) to inhibit secretion of mucolytic enzymes and testosterone, which increases the cholinergic tonus and helps to maintain potassium in the cells. This therapeutic scheme was applied in three cases of advanced and generalized scleroderma. Improvement was maintained in all cases during 1½ years of observation.

Lower Back Pain and Sciatica.—Dr Oke France and colleagues studied 100 patients with lower back pain and sciatica who were hospitalized in general medical wards. They classified the patients into two groups, group 1 included those without symptoms or signs of spinal damage (25 cases) and group 2 those with spinal lesions (75 cases). In 15 cases in the latter group the cause of the syndrome of lower back pain with sciatica could not be found, in 31 cases there was herniation of the nucleus pulposus, in 7 cases herniation of the nucleus pulposus was probably present, in 3 cases there was metastatic neoplasm, in 1 case meningoradiculitis was present, in 4 cases there was spondyloarthritis, and in 1 case there was an extradural lipoma.

Cortisone and ACTH in Arthritis.—Dr M Losada and associates analyzed the results obtained with cortisone and corticotropin (ACTH) in 62 patients with rheumatoid arthritis and reached the following conclusions: 1 Cortisone and corticotropin suppress in variable degree the signs of activity of rheumatoid arthritis. This effect can be maintained as long as the drug is administered. The drugs do not cure the disease. 2 These drugs act on the clinical, biochemical, and histological alterations of the disease but not on the etiological agents. 3 These drugs are the most important ones in the treatment of the disease, but they are not essential in every case. 4 Up to the present moment the authors consider that the best treatment for rheumatoid arthritis is gold salts. They consider that cortisone and corticotropin can be used under the following conditions when there is a contraindication to the use of gold salts or deep radiotherapy, when the latter therapy is inefficient, to increase the tolerance for gold salts, for the treatment of toxic reactions to gold therapy, and as treatment preceding orthopedic maneuvers.

FINLAND

Care of Alcoholics—At a recent meeting of the Finnish Medical Society (Finska Lakarsällskapet) a report on the results of the therapy of alcoholics in Finland was followed by a discussion of recent experiences in this field. In his report on the subject, Dr O Leineberg reviewed the achievements of a polyclinic started in 1947 in Vasa for the benefit of alcoholics requiring outpatient therapy. During the five year period 1947-1951, as many as 533 male alcoholics were studied and treated. They came within the category of alcoholics as defined by the Allan Memorial Institute in the United States, and it was primarily for their alcoholism and not for any remote effect of it that they were treated in this polyclinic. Among the 533 alcoholics were 191 in whom a positive result was achieved, 21 of them becoming total abstainers and the remainder curtailing their drinking habits to an appreciable extent. There remained 342 alcoholics (64.2%) for whom a negative result had to be admitted. Dr Leineberg pointed out how misleading it is to base studies of the therapy of alcoholics solely on the achievements of closed institutions, for about 90% of alcoholics requiring therapy receive it as outpatients, and it is an outpatient therapy that they must usually depend on. It is also a fallacy, in his opinion, to gage the effect of therapy according to whether it does or does not lead to complete abstinence. The man who again becomes a useful member of society in spite of occasional lapses from sobriety may have achieved this success as the result of the therapy he has received, but he is apt to be omitted from consideration in temperance campaigns. Dr Leineberg referred to the activities of an association, corresponding to Alcoholics Anonymous, with 40 members who help each other in Vasa. In this connection great care is taken in choosing a fellow member to be responsible for the personal welfare of each alcoholic. While they were members of this body, these 40 men lost only 162 working days because of alcoholism, whereas as many as 1,042 working days were lost for the same reason over the same length of time before they joined this body.

At the same meeting there was a discussion of the merits of disulfiram (Antabuse) therapy whose value is limited by the fact that close supervision is essential to its success. Another drawback to disulfiram is that its effects last only six hours. Alcoholics persuaded by a wife or employer to take disulfiram are likelier to desert it than when they have taken it on their own initiative. At one time alcoholics could be confronted with the alternatives of disulfiram therapy or hospital internment, but of late the former has lost some of its effectiveness from the discovery, now common knowledge with some alcoholics, that a 0.2% solution of aromatic tincture of iron counteracts the effects of disulfiram. It was evident from the discussion at this meeting that growing interest is now being taken by the medical profession in various aspects of alcoholism.

Tapeworm Pernicious Anemia—At the University Maria Hospital in Helsingfors, Prof Bertel von Bonsdorff has undertaken far-reaching studies of tapeworm pernicious anemia in the past 15 years. During this period much has been added to textbook knowledge of this disease, and this is largely to the credit of von Bonsdorff, who has surveyed recent observations and theories on this subject in *Nordisk medicin* for May 1, 1953. Though tapeworm pernicious anemia is hematologically identical with cryptogenetic pernicious anemia, and the two give rise to the same neurological manifestations, it is only the former that attacks young persons (von Bonsdorff's youngest patients were 11 years old) and it can be associated with free hydrochloric acid and Castle's intrinsic factor in the gastric juice. It has also been found that control of the anemia can be effected by expelling the worm and by giving liver or stomach preparations orally or by injecting liver extract. The same effect can be obtained by giving folic acid orally or parenterally.

Observations have led von Bonsdorff to suspect that the tapeworm must be alive to act as a toxic agent. The live tapeworm may be able to inhibit the secretion of intrinsic factor or may consume intrinsic or extrinsic factor. In other

words, the live tapeworm may compete with its host in absorbing vitamin B₁₂ and possibly some other hematopoietic substances. The subjects of pernicious anemia, whether it is due to the tapeworm or is cryptogenetic, may be constitutionally predisposed to both diseases. In certain persons in whom tapeworm anemia has been cured in youth by expulsion of the worm, cryptogenetic anemia develops in old age. There are also families in which several cases of both forms of anemia occur. In either case a constitutional predisposition may determine faulty excretion of intrinsic factor. In several of von Bonsdorff's patients in whom tapeworm anemia was cured by the expulsion of the worm, tapeworm anemia has developed again when the patient is reinfected with the worm. On the other hand, in many of his patients who recovered from tapeworm anemia after expulsion of the worm, pernicious anemia did not develop on reinfection and subsequently cryptogenetic pernicious anemia did not develop. These and many other observations have led von Bonsdorff to believe that tapeworm pernicious anemia depends on what he calls a constellation of the following circumstances. The tapeworm must be alive in the intestinal tract where it absorbs vitamin B₁₂ and possibly other substances essential to blood formation in its host. Tapeworm pernicious anemia is promoted by an inadequate supply of extrinsic factor and/or diminished production of intrinsic factor. To be effective, the constellation of circumstances necessary to the creation of this form of anemia must be operative over a considerable period.

MEXICO

Use of Vitamins in Severe Malnutrition in Children—One of the conditions that has been carefully studied in the nutrition ward of the Children's Hospital (Hospital Infantil) of Mexico City is that of advanced malnutrition. These studies have been directed by Dr Federico Gómez and collaborators, and during the last two years approximately 200 cases have been observed. The manifestations of advanced malnutrition include extreme emaciation, marked edema, xerosis, extensive pellagrous lesions of the skin, subclinical scurvy, hypoproteinemia, and those signs that have classically been attributed to ariboflavinosis.

Treatment has consisted in an adequately balanced diet that is sufficient in caloric value as well as in vitamin content without the addition of commercial vitamin products. Dr Gómez and his collaborators have found, to their surprise, that in cases of uncomplicated malnutrition that is not extreme, complete cures are obtained in a reasonable period of time, with disappearance of the signs that have been considered to be due to vitamin deficiencies and that, according to foreign authors, require the use of large amounts of vitamins, in the form of commercial preparations, for their treatment.

In cases of extreme degrees of malnutrition or when there is superimposed infection, the clinical course is different. In the first type of case, when the emaciation is severe, the cellular damage appears to be irreversible, with loss of the capacity of the tissues to utilize nutritive substances. Gómez and associates have called these conditions "tissular agony," as they systematically lead to death. In the presence of infections, which are ordinarily gastrointestinal or respiratory, the clinical course is frequently unfavorable, although not necessarily fatal. Correction of the nutritional alterations, if they are reversible, is slower and more difficult.

Reorganization of Department of Public Health and Welfare—On the day of his inauguration (Dec. 1, 1952), President Ruiz Cortinez appointed Dr Ignacio Morones-Prieto as Secretary of Public Health and Welfare and Dr Manuel Pesqueira as Undersecretary. Dr Morones-Prieto had already been under secretary of this department in the first months of President Aleman's administration, later he was governor of the state of Nuevo Leon. He is a distinguished physician who for many years practiced medicine in the city of San Luis Potosi, where he was twice rector (president) of the university.

Dr Pesqueira is a urologist who, besides maintaining his private practice, is a member of the staff of the urology service in the General Hospital, Mexico City. It is expected that he

will be in charge of the technical aspects of the reorganization of the Department of Public Health and Welfare. The reorganization involves selection of personnel, review of programs, and study of the sanitary and welfare problems of the country.

Among the new administrative measures were the creation of two new subdepartments, one for the control of foods and beverages and the other for maternal and infant care. The medical care of farmers was also emphasized. A campaign against poliomyelitis was added to the already existing national campaigns against tuberculosis and malaria.

Dr Donato Alarcón, one of the outstanding Mexican specialists in tuberculosis, was chosen to direct the national campaign against tuberculosis. Because of his long experience, it is believed that the achievements of this campaign will continue.

The campaign against malaria is of particular importance in Mexico, as it is known that 7% of the general population is affected in some form or another by this disease. For a better coordination of this campaign, the country has been divided into 10 zones. The fight against malaria consists of destruction of the carrier of the *Plasmodium* parasites and treatment of the patients with active forms of the disease. For the first purpose the Department of Public Health and Welfare will work with the Department of Water Resources in order to drain swamps polluted by *Anopheles* mosquitoes. Where drainage is not feasible, the swamps will be sprinkled with a mixture of petroleum and DDT. Regarding the therapeutic aspects, the Department of Public Health and Welfare will establish special laboratories to process quinine obtained from the plantations that were started 10 years ago in the state of Chiapas. It is expected that the quinine so acquired not only will suffice to provide for the malaria campaign (in which it is planned to distribute quinine free to persons with inadequate economic resources) but will provide a surplus for export.

The new national campaign against poliomyelitis has as its principal aim this year the administration of gamma globulin to children between 6 months and 5 years of age, when the epidemiologists estimate that the 1953 outbreak of the disease is progressing towards its peak. To procure the necessary amounts of gamma globulin, the Department of Public Health and Welfare has given wide publicity to requests among the general population for 50,000 liters of blood. In order to facilitate its collection, most of the hospitals and health centers of Mexico City have organized sections with the necessary means for that purpose. The second aim of the campaign against poliomyelitis is the care of the children in whom paralysis develops. Two special institutions have been planned for this purpose besides the already existing facilities of the Children's Hospital.

SWEDEN

Prognosis for Bundle Branch Block.—In the Vasa Hospital in Gothenburg, Dr Bengt Lundh made an analytical study of 100 consecutive cases of bundle branch block observed in the 10 year period 1942-1951. During this period about 18,500 patients were treated in the hospital. Thus, 0.5% of these patients represented cases of bundle branch block. This condition was observed in 3% of the some 3,300 patients undergoing electrocardiography. The ratio of 61 men to 39 women was an underestimate of the comparative liability of men to suffer from this condition as the female patients in the hospital during this period outnumbered the male patients by 25%. The mean age for both sexes at the time of the diagnosis of this condition was 73.1 years. There were only 10 cases (all ending fatally within a year) of right sided bundle branch block, the remaining 90 being cases of left sided block. All the five patients with Wilson's block were dead within a year. Altogether 46 patients died within a year of the diagnosis, the mean duration of life in this group being only three months after the diagnosis. The duration of survival for all 100 patients after the diagnosis was a mean of two and five tenths years, and it was four years for the patients surviving the first year. There were 15 patients who lived five years or more and three who lived more than 10 years after the diagnosis. In as many

as 77 cases, the bundle branch block was traced to hypertension or coronary disease or a combination of the two. All the 66 patients examined post mortem showed marked coronary sclerosis, and 8 of them showed enlargement of the heart. Dr Lundh, whose study was published in *Nordisk medicin* for April 24, 1953, concludes that the prognosis in such cases depends on the basal disease from which the patient is suffering and that it is not justifiable to indulge in a pessimistic prognosis hinging only on a bundle branch block, which by itself is not necessarily incompatible with a long life and a certain physical activity. It would seem that this condition is not rare and in many cases causes no obvious disability.

Frequency and Treatment of Incontinence of Urine.—A recent statistical investigation carried out in the course of three weeks at the Vasa Hospital in Gothenburg by Dr Per Westerberg has shown how distressingly common incontinence of urine is among old persons. The six analytical tables and two charts, which he published in *Nordisk medicin* for April 10, 1953, dealt with 319 hospital patients, of whom 102 suffered from incontinence of urine and 64 from incontinence of urine and feces. The incontinence rate was much the same for men as for women, but, while for men the ratio of slight and sporadic incontinence to daily incontinence was 4 to 31, the corresponding ratio for women was 24 to 43. In other words, slight and intermittent incontinence was much commoner in women than in men. Again, in the oldest age group, incontinence was three times as common among women as among men. This may be so because women live longer than men or possibly because old incontinent women live longer than old incontinent men. The high rate of incontinence in this study may largely be accounted for by the fact that about 90% of these patients suffered from functional or somatic disturbances of the central nervous system. Among the 102 incontinent patients were 17 suffering from senile dementia and cerebral arteriosclerosis and 32 from universal arteriosclerosis. There were also 21 hemiplegic patients, but paralysis agitans accounted for only 2 cases and syphilis for only 3. Infection of the urine was so common in men that the ratio of those with infected to those with sterile urine was 6 to 1. The corresponding ratio for women was 2 to 1. Some temporary relief of incontinence was effected by urinary disinfectants, but a fortnight later urine was again found to be infected.

In regard to treatment, Dr Westerberg insists that the first and most urgent step is to get the patient out of bed and to prevent his return to it for good. Much can also be done by exercise therapy and by training the patient and stimulating him to retain or recover control of the bladder. Dr Westerberg refers briefly and unenthusiastically to treatment with such drugs as ephedrine and belladonna.

Criticism of Popular Health Education.—In *Svenska läkartidningen* for April 17, 1953, Dr Erik Engelfeldt of Stockholm stated that education of the public in matters of health should be conducted with a serious sense of responsibility. To illustrate his point, he recorded cases demonstrating the virtues and vices, respectively, of popular health education. His first case, illustrative in a negative sense of the virtues of such education, was that of a man, aged 50, admitted to hospital suffering from myocardial infarction. He had been lifting a heavy barrow load of earth when he suddenly experienced violent precordial pain. He continued to work, although the pain was excruciating. His death in a hospital a few days after his admission to it might have been averted had popular health education taught him to note such symptoms. Dr Engelfeldt's second case, illustrative in a positive sense of the vices of popular health education, was that of a boy, aged 19, suffering from myeloblastic leukemia, the nature of which he did not understand, although his parents knew what this diagnosis implied. One day the son confronted the parents in much distress with the exclamation "You need not deceive me any longer. I have read in the newspapers today about blood cancer, and this must be what I am suffering from." Dr Engelfeldt sees no reason to disturb the public with information about diseases for which a cure is unknown.

CORRESPONDENCE

WORCESTER CHEST X RAY SURVEY

To the Editor—The Worcester, Mass., chest x-ray survey was the 22nd of its kind conducted with the cooperation of the United States Public Health Service. The main object of these surveys has been to obtain roentgenograms of the entire population over the age of 15 years during a period of 5 years. This objective has not been reached, although the program is now in its eighth year. This type of survey is a service to the person of whom a film is made and to the persons close to him, but it is not an effective method for bringing a costly disease under control.

Our program was completed in September, 1952, and our statistics as of Dec. 3, 1952. The work required 3,000 volunteer workers of all classifications and professions. It is estimated that they supplied more than 300,000 hours of work, which, if paid at a minimal wage scale level, would have cost at least \$300,000. The literature shows that no effort has been made to make the over-all costs of such surveys known. Based on the figures of the U S P H S and the money obtained locally, the actual cost of our survey was approximately \$150,000, a cost of \$1.00 for each person who received a 70 mm film. If the costs of volunteer service are added, the costs rise to \$3.00 per film. When broken down, these figures show that the cost for each positive case of tuberculosis found up to Dec. 3, 1952, amounts to approximately \$3,000. When the cost of the time contributed by the volunteers is added, the cost per case found is \$9,000. If these same figures are used, the cost for each suspicious case discovered by the survey amounts to \$3,000. These costs do not seem justified when they are spent for control of a disease that is steadily declining because of many nonmedical contributing factors, such as better living and working conditions, shorter working hours, more and relatively less costly foods, and the general increase of health knowledge.

Our survey was unusual when compared with programs in other areas. For unexplained reasons, ours was the first conducted without the usual, preliminary community survey. A preliminary survey would have shown that there was no need for this program, that there was a low tuberculosis incidence in the area, and that Worcester was a comparatively healthy city. All of this the medical profession already knew. Our medical committee feels that local medical societies should initiate these programs, not public health officers or other voluntary health agencies. If this practice were followed, the medical profession would not be forced into a compromising position, and there would be a better relationship among all organizations concerned. Previous local experience made us cautious, and we agreed to participate in this survey only with the understanding that it would be a fact-finding community project. The result was that for the first time in the survey of 22 areas, a local medical society assumed the major role in the development and control of the policies of the program.

After assuming this leadership, the medical committee, with the approval of the general executive committee, took upon itself the management of the major portion of the survey. Some of the important actions and rules by which the medical committee conducted this program were as follows: 1. This was to be a fact-finding survey, and no diagnosis was to be made or implied. 2. The survey had two primary purposes, first, to find new cases and rediscover old cases of tuberculosis and, second, to refer persons in whom findings were positive or suggestive to a physician or clinic of their choice. 3. A medical information pamphlet should be published to acquaint all members of the medical society and of allied medical groups with the purposes and objectives of the survey. 4. The program was to provide all persons over the age of 15 years an opportunity to have a chest film. 5. Basic criteria for the recall of all suspicious findings were established, and the criteria for the interpretation of the chest films were drawn. 6. Under the medical executive committee, five medical review panels were set up. The members of these panels were

all members of the district medical society. The film review panel was the greatest contribution made to date by any medical society in any similar survey. It consisted of all the radiologists of the medical society. These radiologists volunteered and read all 14 by 17 in films taken in the survey. The other review panels were the cancer review panel, heart review panel, medical and surgical review panel, and the scoliosis review panel. The scoliosis review panel brought into this type of a survey a new and interesting study of a large number of scoliosis patients who would otherwise be hard to find. It is hoped that some conclusion on the relationship of scoliosis to diseases of the chest, if any, may be reached. 7. A flow chart was devised for the management and disposition of all persons filmed and a list of physicians who would be available to those patients not having a regular physician was made available. 8. The use of the word "free," was eliminated from the distributed literature and from the local press. The same word was painted off the mobile units. 9. Through a legal contract with the U S P H S, full control was obtained of all facts, figures, and statistics developed by the survey. These actions plus many others resulted in a program that had few problems in comparison to those of other areas surveyed, and our figures show that it was a successful program.

A summary of the facts and figures developed from our survey shows the following findings:

	Number	%
1 Estimated eligible adults	158,979	
2 70 mm films taken	153,510	
3 Eligible population filmed		96.0
4 Satisfactory 70 mm films read	159,260	99.2
5 Unsatisfactory 70 mm films read	1,250	0.8
6 Essentially negative findings in 70 mm films	146,997	96.5
7 Possibly abnormal findings in 70 mm films	5,263	3.5
8 Persons suspected of having		
Tuberculosis	2,699	1.7
Cardiovascular disease	402	0.3
Neoplasm	74	0.6
Other chest disease	1,292	0.9
Scoliosis	896	0.6
9 Recalled to retake center because of chest diseases	3,259	100.0
10 Total responding to retake center	2,904	89.1
11 Total failing to respond	355	10.9
12 Of the 355 who failed to respond		
220 or 61.9% went to private physician		
42 or 11.8% went to hospital or clinic		
61 or 17.1% lived out of survey area		
32 or 9.2% unable to locate or come		
13 Cardiovascular cases recalled	344	100.0
14 Total responding	262	79.0
15 Scoliosis cases recalled	896	100.0
16 Total responding	689	77.0
17 Satisfactory 14 by 17 in films taken	3,165	100.0
18 Essentially negative findings in 14 by 17 in films	419	13.2
19 Evidence of old healed disease on 14 by 17 in films	790	22.8
20 Referred for study from 14 by 17 in film findings	2,026	64.0
Of the 2,026 referred for study		
1,019 were suspected of having tuberculosis		
98 were suspected of having cardiovascular disease		
247 were suspected of having neoplasm or tumors		
602 were suspected of having other chest diseases		
21 Total referred to private physicians or clinics	2,580	100.0
A Referred to physicians	2,330	90.3
Reported to physicians	2,161	92.7
Disposition still pending	169	7.3
B Referred to hospitals or clinics	250	9.7
Reported to clinics or hospitals	230	92.0
Disposition still pending	20	8.0
C Summary of referrals		
Total	2,580	100.0
Under supervision	2,331	92.3
Cases closed (12-3-52)	1,690	65.5
Disposition still pending	189	7.3
22 Previously unknown cases of cardiovascular disease discovered	13	0.1
23 Total suspected tuberculosis cases referred by survey	1,209	
New cases found by survey active	50	
New cases found by survey inactive	67	

Since the beginning of the survey, 26 patients were admitted to Belmont Hospital for either diagnosis or treatment. As of Feb 1, 1953, only eight patients are still hospitalized. No change in the hospital census has resulted because of the survey findings to date.

The success of this program is hard to evaluate. Whether the success should be based on the number of new cases discovered or on the value of the medical education brought into a community by this type of a program depends on the reasons for which this type of a survey was first established. To the average person who is found normal, there will always be a question as to its worth. To the person in whom is discovered tuberculosis in an advanced stage or a lung tumor that is amenable to operation, the value of the program becomes extremely worth while and no cost would be too large.

Our program was a successful one for many reasons. Some new cases of tuberculosis were found, and some forgotten ones were rediscovered. An average number of lung and chest tumors were found, and some persons will be greatly benefited. The survey made possible evaluation of the health of our community. The largest health program ever attempted in our community was conducted successfully. Of the persons eligible for chest films in the area included in the survey, 153,510 (97%) were contacted. The number of persons included in the survey surpassed the original goal of 125,000 by 28,510, a goal percentage of 122.8. Our success was the result of good community spirit and full participation.

The value of continuing these surveys in other areas is questionable. It would seem that if statistics were the prime motive of these surveys then they have been obtained. If, on the other hand, eradication of tuberculosis was the prime motive, it is doubtful that these surveys can do a better job than they have already proved is being done by local and voluntary health agencies.

The exorbitant costs of these surveys cannot be justified by the number of new cases discovered. It would be more valid, at this time, to justify the cost by the number of new cases of cancer of the lung or chest that are discovered, a small number of which will be cured. These thousands of dollars could be put to better use if spent for the care of already known cases of tuberculosis.

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RESUSCITATION OF NEWBORN INFANTS

To the Editor—In *THE JOURNAL*, May 16, 1953, there is an article "Resuscitation of the Asphyxiated Newborn Infant." The first sentence reads, "It is generally agreed that responsibility for resuscitation of the newborn infant belongs to the anesthesiologist." May I ask, agreed by whom? Surely obstetricians have not agreed on this. Would the authors of the article have the anesthesiologist, who is keeping the mother asleep with an inhalation anesthetic, stop administering the anesthetic and resuscitate the baby for the obstetrician, or would they perhaps recommend that there be two anesthesiologists available in every delivery room, one to care for the mother and the other for the baby? Anesthesiologists (at least some) are not the only ones who consider it their prerogative to resuscitate newborn infants. The officials of the Chicago health department are of the firm opinion that a pediatrician should be in the labor room at the time of every delivery to care for the baby immediately after birth. Surely obstetricians are as well trained in the care of newborn babies during the first hours after birth as pediatricians are. Furthermore, I would like to know how many pediatricians would be willing to be called out at any hour of the day or night to stand around in the labor room with nothing to do in the majority of cases.

May I point out that for a long time obstetricians have successfully resuscitated newborn babies with or without a tracheal catheter and without complicated instruments. It would be ideal indeed if we could have the same anesthetic care

for maternity patients that all other types of surgical patients receive. Not only mortality and morbidity rates in mothers would be reduced but fewer babies would require resuscitation. I hope the day will soon come when obstetric patients will have the services of well-trained anesthesiologists. Regardless of this, however, the physician who delivers the baby must know how to resuscitate it when necessary.

In copying some of their data from Little and Tovell's excellent review of asphyxia of the newborn (*Collective Review: The Physiological Basis for Resuscitation of the Newborn*, *Internat Abstr Surg* 86:417-428, 1948, in *Surg Gynec & Obst*, May, 1948), the authors made a slight error. They say, "The incidence of asphyxia increases markedly if the mother has passed the age of 35 to 40 years." Actually what Little and Tovell said was "The age of the mother is of no importance until the age of 40 is reached but that thereafter the incidence of asphyxia increases markedly." There are many women between the ages of 35 and 40 who have babies who are not in much greater jeopardy from asphyxia than are the infants of younger mothers. The authors also say, "In anoxia caused by cerebral injury to the fetus, the main injunction is the avoidance of trauma, particularly in such operative deliveries as midforceps, which carries a 30% mortality." I wonder where this fact came from. There is no doubt that midforceps deliveries are often traumatic, but surely the technique is not traumatic enough to kill almost every third baby. In fact, in *THE JOURNAL* (146:1465 [Aug 18] 1951), Weinberg reported a series of 1,000 midforceps operations with an uncorrected fetal mortality of 0.6%. This is an exceptionally low fetal death rate, but to say that 30% of babies die from midforceps operation is fantastic and untrue.

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IDIOPATHIC ADRENAL APOPLEXY

To the Editor—The interesting case report by Ralph C. Greene on spontaneous idiopathic bilateral adrenal apoplexy associated with hypertension in *THE JOURNAL*, May 9, 1953, page 133, deserves comment. The 52-year-old man, with hypertension, nephrosclerosis, and renal insufficiency, had received considerable amounts of corticotropin (ACTH) for generalized "arthritic" aches and pains. He died seven days after hospitalization. I do not think that treatment with corticotropin was indicated. There was no evidence of arthritis of any kind, and the complaints of the patient fit the clinical picture I described as "hypertensive polyalgia" (*Differential Diagnosis of Internal Diseases*, New York, Grune & Stratton, Inc., 1950, p 188). I believe that treatment with corticotropin was contraindicated and that bilateral adrenal apoplexy could result from the administration of large doses of corticotropin to a person with arteriolar damage and hypertension.

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HUGH OWEN THOMAS

To the Editor—I am writing a biography of Hugh Owen Thomas and also a revised edition of his works. I am anxious to gain access to unpublished material relating to any aspect of Thomas' private and professional life and to the history of his family. Thomas' association with American orthopedic surgeons is well known and was described by Dr. Winnett Orr in his book published a few years ago. I would be grateful for the opportunity of studying any papers in private ownership and will handle them carefully and will return them as soon as possible.

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MISCELLANY

NOTE ON MILITARY MEDICINE

Alan Gregg, M D, New York

The rosters of all military medical services at present show a disturbing ratio between career men and civilians on relatively short turns of duty, a ratio in which the number of career men is already too small for the optimum utilization of the services of either group. Since the percentage of doctors of medicine on full time or part time salaries is increasing, and since, therefore, the various characteristics of medical careers are receiving attention from an increasing number of prospective aspirants for salaried positions, some of the elements of medical careers deserve review. This assertion carries additional weight because the falling purchasing power of the dollar has disturbed what used to be a stable factor in the calculations that could be made about any type of medical career. Some reflections on what, generically, will be called military medical careers seem to be in order.

From the range of motivations that apparently influence the choice of a career, it is evident that some young men choose their careers for reasons that are little affected by anything other than radical deterioration of salary, tenure, and terms of retirement. Such motivation is comparable to that which a psychiatrist calls a fixation. Such preferences often date from childhood and are fortified by family tradition and approval. These decisions do not deserve the onus of being called irrational and are free of the charge of being calculating. A young university president, who confided to his predecessor that the salary was pretty low, received from the president emeritus, who had loved the job, a broad but nonetheless applicable reminder, "But remember that better men than you are working as hard for less money." For some men, admittedly, the choice of career is but little influenced by the salary or the attendant circumstances. They want that particular career regardless. I think that this group is small and that it is at one end of a spectrum balanced at the other end by those who, without any fixation, are not only disposed and prepared to drive a hard bargain but also skeptical and realistic in their insistence on selling their services only to the highest and most dependable bidder. Obviously, between these two extremes fall a large number of persons who are, in the choice of their career, sensitive to changes that might be made in the terms offered. Indeed, it is only from this intermediate group that one could expect any appreciable increase in numbers as a result of increasing the attractions of a military medical career.

CHOICE OF A CAREER

In the choice of a career, several considerations are important: the presumed qualitative nature of the career itself and of its attendant circumstances, the variety and magnitude of the measurable or quantifiable rewards, the dependability of the terms offered, the extent to which the choice is irrevocable or the rapidity with which it becomes irreversible, and the number, reliability, and attractiveness (both qualitative and quantitative) of alternate careers.

The medical school graduate today enters a profession that is not overcrowded, he enters a seller's market. His services are in demand. His is the profession that averages the highest professional income in the United States, \$11,300 for an average of 58 hours of work per week. The variety of activities open to the possessor of the degree of doctor of medicine belies the casual assumption that a physician is just a physician. The variety of opportunity is evident from the widely variant requirements and rewards in medical careers, such as teaching, research, hospital administration, writing and editing, public health, industrial medicine, psychiatry, obstetrics, pediatrics, general practice, surgery and its specialties, and internal medicine and its subdivisions. In most of these careers alternative to military medicine, the beginner feels that the judges of his performance will be numerous (his patients) and, thus, dependably responsive, in the aggregate, to his capacities and

his efforts. He also feels that he is free to choose whether he will be self-employed or on salary and that he can easily change, if he pleases, his type of work, where he will live, and the form of his remuneration without uncontrollable loss of progress, competence, or prestige. To the more self-confident there appears no arbitrary limit, in private practice, to the quality or quantity of the recompense he can earn. To those who set great store by individual liberty, there is no boss who demands submission. Thus, the young physician considering a military medical career has, at present, many choices that offer attractions other than high financial returns.

The same attractions influence the decision to become a full-time teacher of medicine, and their cogency shows in the fact that full-time university salaries in the clinical fields are, with but few, if any, exceptions, higher than full-time teachers' salaries in any other faculty of the university. A competent clinician can augment this university salary by seeing private patients, without devoting thereto any conspicuous part of his "full" time. A professor of medicine at a state university, who had been teaching 58 hours a week (full time), was granted by the Regents the opportunity to see private patients 4 hours a week at the university hospital. In these 4 hours, he earned as much as the university paid him for the other 54 hours. That illustrates the discrepancy between private and public sources of income not familiar to most laymen and not frequently understandable even if it is known. It casts some light, however, on the difference in the scale of salaries paid for employed physicians and the financial rewards of private practice.

Aside from the military medical career, there are several careers that are varied, well paid, and not notably difficult to change or leave. Many of them allow an apparent independence and a stability that may be depended on when that independence is of the successful variety. Indeed, most civilian alternatives to a career in military medicine offer as their chief attractions those that appeal to the restless, the optimistic, the self-confident, the adventurous, and the extreme individualist. Let us hope they have the qualities of their defects; for private practice can also be conducted so as to make scant appeal to the socially minded, the conscientious, the undemanding, the self-critical, and the cautious.

By so much as military medical careers are made or encouraged to differ from civilian careers, the types of men attracted and retained by each will differ one from the other, and attempts at working together will produce friction and futility. It seems to me only common sense to realize that, until medical schools redress the imbalance in their entrance criteria that at present appear to favor scholastic records over evidence of unselfishness, conscientiousness, and the other character traits that keep society together, there will not be enough physicians to staff the military medical services. Why?

Military medical services seem to be operating at a sharp disadvantage because of conditions that could be remedied. What business or other form of human association could function smoothly with a complete turnover of two-thirds of the staff every two years? What psychological easement can be expected if 15 civilians are each forced to partly waste 2 years because conditions of service are not attractive enough to hold one man for 30 efficient years? Civilian medical organizations would be smarter to help make careers in the armed services oftener attractive to some, and, thereby, less often compulsory for the rest. As long as neglect and distrust are the treatment expected in a branch of the service that is as misunderstood as it is honorable and as honorable as it is important, the civilian medical profession will continue to pity itself for being in a situation that it could do more to remedy than anyone else. More civilians should speak up in behalf of the military, if they do not want to be drafted.

DISADVANTAGES OF MILITARY MEDICINE

What are the disadvantages of the military medical services regarded as a career? Before the nature of that career and its concomitants are discussed, two general defects must be mentioned. The first is that Congress can and on occasion has changed the terms of service with such finality and definite authority that these terms cannot be regarded as having the actionable character of those of a civil contract. It should be pointed out that changes in national and international politics

underlie the unpredictable character of the terms of service. This fact, however, does not lessen the handicap it puts on the nature of a military career. Such exigencies have been met with admirable patience and unselfish patriotism by career men in the medical services. Realistic estimation of the results of broken promises should result in an effort to mend the situation by some more practical measures than mere denial of their existence or belittlement of their harm. They have occurred. They do hurt. And they may happen again.

The other general defect of military medical service is not so much the initial finality of entering the service as the rapidity with which administrative routine relegates medical knowledge and skill to the sphere of forgotten things and makes the choice of a military career an irreversible decision. By so much as the permanent staff are outnumbered by temporary men from civilian life, administrative duties for the permanent men are likely to increase at the expense of their professional contacts, reading, and work. Much has already been done to preserve professional alertness, but continuing support for such measures is needed—the courage to pay the cost thereof. Again, a solution would be much easier if the number and ratio of career medical officers were larger.

Among the circumstances attendant on a military medical career and apart from salary, tenure, and retirement, housing in many stations is mediocre, the real cost of changing stations is not covered in full by the service allowances, the uncertainty of being able to put down roots in any community proves frustrating to some men and their wives, and education of children, even if it is easy and good, is also subject to unpredictable interruption. In instances in which the freedom to resign or retire has been sacrificed, the sense of a loss of personal independence intensifies itself, and the frustration that may result is capable of taking both varied and destructive outlets. Sampson was neither the first nor the last strong man to bring a temple down as a result of outrage and resentment, cynicism and apathy result from frustration in less combative spirits.

Such unfavorable circumstances often affect as strongly or more strongly the wives of medical officers than the men. Various reverberatory phenomena ensue that increase neither the contentment of either spouse nor their combined efficiency.

In addition to increases of salary and pension, there are only a few measures that are likely to increase the attractiveness of a military medical career. These are better housing or housing allowances, more generous arrangements for moving costs, more freedom to resign or retire at will, and maintenance of the present gains in opportunities for special professional training at all costs. It does not seem that increasing the salaries in only the lower or in only the upper ranks will accomplish desirable results. Surely it is folly to overlook the peculiar and, perhaps, inherent uncertainties of military service or the necessity of making up for that grave handicap. For, to the willing, eager, and contented productivity of a group of human beings, it is a handicap to live in uncertainty.

ADVANTAGES OF MILITARY MEDICINE

Military medical service is not without advantages. Programs of professional training are in force and are productive. The opportunities for personal growth and recognition are increasing, particularly in certain special spheres, such as submarine physiology and tropical or arctic medicine. In February, 1953, the American Medical Association recognized aviation medicine as a distinct specialty and authorized properly qualified persons to be Board certified. The aviation medicine group became affiliated with the former American Board of Preventive Medicine and Public Health, which changed its name to the American Board of Preventive Medicine. This Board will conduct separate examinations and issue separate certificates to those qualifying in aviation medicine on the one hand and public health on the other.

Military medicine eliminates the chance and even the occasion for mercenary or competitive exploitation of patients. The military community offers opportunities for friendships and social life just as pleasant as in civilian life. Salaries at least are dependable and calculable, as is income on retirement. Personal and family medical care is prompt and certain. There are no bad debts of patients. Promotion, though it should never be automatic or regardless of merit, receives more

criticism for being uncertain, slow, and arbitrary than it would if the pay at all levels compared more favorably with average civilian incomes. The real value of retirement pay depends at present all too precariously on the value of money, but so does the nest egg of a civilian. The civilian, however, can and will, if the present inflation continues, continue to work until he dies, a grim privilege, but a real one sometimes.

SUMMARY AND CONCLUSIONS

Several points seem worth emphasis. As long as the conditions and rewards of military medical service present sharp and unrelieved contrasts to those of civilian medical life, the recruitment of permanent career men in the armed medical services will be small and the peculiar defects of military medical careers will continue if not, indeed, increase. This situation will increase and aggravate the demands made on civilian physicians. It seems both fair and wise to redress any possible injustice and, more important, to face with plain realism and to remedy all possible factors that contribute to the tension, frustration, and discontent that characterize both sides of a very uneven partnership in American medicine.

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BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Medical Practice Acts: Disciplinary Action Following Conviction of Contempt of Congress.—This was a proceeding to review disciplinary action taken against the plaintiff physicians. From a judgment against them, the physicians appealed to the supreme court, appellate division, third department, New York.

The plaintiffs are physicians who were convicted in the U S District Court of the District of Columbia for contempt of Congress for refusal to produce certain records before a congressional committee. That offense is a misdemeanor, and therefore a crime. Their conviction was affirmed by the Court of Appeals for the District of Columbia, and certiorari was twice denied by the Supreme Court. Subsequently, the Board of Regents of the State of New York made a determination as to each petitioner in disciplinary proceedings, which this proceeding, under Article 78 of the Civil Practice Act, seeks to annul. The Board of Regents acted under Section 6514, subdivision 2(b), of the Education Law, which authorizes discretionary disciplinary action against a licensed physician who "has been convicted in a court of competent jurisdiction, either within or without this state, of a crime." The physicians interpret this language to mean that the "crime," wherever committed, must be one constituting a crime within the purview of the laws of the state of New York. They urge that there is no such crime as contempt of Congress in this state.

When the legislature used the words "within or without the state," it presumably meant what it said. There is no ambiguity in that language. Had the legislature meant a crime "without the state," which would constitute a crime within this state, it would have said so, as it has in other instances. The physicians also argued that the crime of which they were convicted bears no relation to the practice of medicine and involves no moral turpitude. The conviction for any crime, said the court, bears some relation to the practice of any profession, and moral turpitude depends on a point of view and existing circumstances. Presumably, and by its language, the legislature intended the Board of Regents to determine those questions and exercise its discretion. The legal history of the trial, conviction, and appeals conclusively establishes that petitioners were convicted by a "court of competent jurisdiction" and we think the Board of Regents acted within its lawful authority in making these determinations. Accordingly, the disciplinary action against the plaintiff physicians was confirmed. *Miller v Board of Regents of University of New York, Auslander v Board of Regents of University of State of New York*, 111 N.Y.S. (2d) 393 (New York, 1952).

THE LEISURE CORNER

No man is really happy or safe without a hobby, and it makes precious little difference what the outside interest may be—botany, beetles or butterflies, roses tulips or irises, fishing mountaineering or antiquities—anything will do so long as he straddles a hobby and rides it hard

—Sir William Osler

One cannot practice medicine alone, and practice it early and late as so many of us have to do, and hope to escape the malign influences of a routine life. The incessant concentration of thought upon one subject however interesting tethers a man's mind in a narrow field. The physician needs a clear head and a kind heart; his work is arduous and complex, requiring the exercise of the very highest faculties of the mind, while constantly appealing to the emotions and finer feelings

—Sir William Osler

Although many physicians have hobbies for the reasons given by Osler many years ago, there are several other explanations to account for the vast number of medical hobbyists extant today. First, most hobbies have generally started out as pure, unadulterated fun, frequently providing opportunities for the expression of creative ability unrealized in daily medical practice. A couple of centuries ago the English had a name for a horse that could be ridden over every terrain in all kinds of weather. They called it a "hobby." The nag was immensely popular precisely because it was at once enjoyable, serviceable, and easy to ride. To be sure, not all hobbies are easy to ride, but the choice is there for all sorts of persons to make, and is governed only by pocketbooks, tastes, and moods.

While it has never been established with certainty why a physician does not have a hobby, it is somewhat easier to say why he does have one. Some physicians' hobbies are harnessed to the needs of their daily work, for others, the further afield they go from the scene of their daily task the more content they are astride their hobbyhorses. Each hobby carries the rider into the fraternity of its followers and forges a solid link with persons who might otherwise never become acquaintances or friends because of the barriers thrown up by circumstances, occupation, or geographical location. Indeed, the same curiosity and creative impulse often motivate the surgeon and the newsboy on the corner when it comes to model trains, each feeling a bond of kinship for the other because of a mutual interest. The manner and speed in which this is accomplished depends as much on the goal of the medical hobbyist as on his inclinations and temperament.

Hobbies also furnish a more or less artificial way for mastering an entire sphere of activity from beginning to end. It is possible, of course, to lavish as much planning, research, and flights of the imagination on a hobby as one wishes, and the devoted hobbyist can study and investigate as many facets and ramifications of his field of interest as he desires. He does most of the spadework himself, and this, too, provides more than escape from a humdrum existence. The more deeply engrossed the hobbyist becomes the more satisfying the appearance of the vistas and horizons that loom ahead and the more acute the realization that the goal of perfection among hobbies, as in the case of the practice of medicine, is desirable but unattainable. Yet the excitement of the ever present challenge remains.

The names of many excellent physicians would have faded from the memory of the generation to which they belonged had not literature or some other chosen hobby or recreation conferred on them lasting renown, overshadowing and almost obliterating the fact that initially they were members of the medical profession. It is to literature that many physicians have turned, using such time in the beginning of their literary labors as was available away from medical practice. Undoubtedly, it is the experience of the physician, who is in constant, close contact with every phase of life and the nuances

of human nature, that has enabled him to succeed in so many instances as an author. Such literary figures as W. Somerset Maugham, A. J. Cronin, A. Conan Doyle, Arthur Schnitzler, Eugène Sue, Anton Chekhov, William Carlos Williams, Francis Brett Young, Joseph Hergesheimer, and A. S. M. Hutchinson, to name an important few, have demonstrated what medical men can do in terms of the novel. Were Samuel Coleridge, John Keats, and Johann Wolfgang Goethe to be addressed as "Doctor," most persons, including physicians, would be astonished to learn that these famous poets were once so designated. Yet, medical men they were, each one of them.

Some of the physicians who made important contributions to medicine have also been noted for their musical accomplishments; they usually became proficient performers on musical instruments or composers at the expense of what little leisure time was available away from medical practice. The Viennese physician Leopold Auenbrugger, discoverer of percussion of the chest, apparently developed an interest in that art as a result of listening to his innkeeper father thump away at wine casks for the purpose of measuring their alcoholic content. Later, Auenbrugger became court physician to Maria Theresa and wrote the libretto for the opera "The Chimney Sweep." One of the outstanding teachers of his time, Hermann Boerhaave, was perhaps the first physician to cultivate the playing of chamber music at his home, while Edward Jenner, discoverer of vaccination against smallpox, played both the violin and the flute. Caspar Bartholin, after whom the glands are named, wrote authoritatively about the double flutes of Greece, from which the oboe, the English horn, and the clarinet developed.

Perhaps the outstanding figure in medicine in relation to music is that of Hermann von Helmholtz. He not only practiced medicine, played several musical instruments, and was a distinguished connoisseur and critic of music but also wrote an exhaustive treatise on the physiological basis of tonal sensations. Like Helmholtz, Theodor Billroth, the pioneer of visceral surgery, was intensely interested in music and was an excellent pianist. Billroth was an intimate friend of the composer Brahms, and for many years the musical soirees at his home were famous. It was at Billroth's home that almost all of Brahms' chamber music was performed before being presented to the musical public. Still other physicians who made notable contributions to music were Alexander Borodin, composer of the opera "Prince Igor" and many symphonies, whose greatest compositions were written during the busiest period of his medical career, and Albert Schweitzer, who became the world's foremost exponent of the organ music of J. S. Bach. It is not surprising that few physicians have attained top rank in the field of music, yet it is a fact that thousands of physicians have enjoyed and cherished music as a hobby or avocation.

Physicians have for centuries been interested in painting, sculpture, and, more recently, in photography. Several of the early anatomists made their own drawings—Eustachio in the 16th century, Sylvius in the 17th, and Camp in the 18th century. During the Renaissance, medicine and art were inseparable. The greatest artists of their day were also great anatomists, notably Leonardo da Vinci, Michelangelo, and Raphael. They, and others like Vesalius, initiated scientific dissections, and their records of their observations gave medicine and surgery a tremendous impetus. During the 19th century, Pasteur and Charcot busied themselves with pastels and other aspects of art.

For the physician who complains that he cannot draw a straight line but would like to join the growing ranks of "Sunday painters," the eminent pediatrician the late Dr. A. Graeme Mitchell had these encouraging words of advice: "Everyone should produce in his avocation as well as in his vocation. He needn't take this too seriously and excite himself to professional ambition but he should carve, mold, draw, paint, or etch. I confess to this type of weakness. I am no artist and I admit it. Since I draw with a paltry pencil, paint with a scurvy brush and etch with an atrocious needle, I admit also to belonging to the ultra modern school and I prove it because my productions are distorted, far from understandable, and resemble nothing in Nature made by God or man."

They can be hung upside down, put in attic or basement, be in strong light or weak, face the wall or boldly back against it, and in all these situations be pleasing and strikingly modern."

Not all physicians are omnivorous readers or Sunday painters, yet their spirit for research and for the fascination of medical science make them indefatigable and insatiable when once the collecting fever seizes them, be it the collection of stamps, coins, paintings, beer mugs, model boats, or any of a hundred other things. It is for physicians as a group that some of the forthcoming articles on hobbies to be published in *THE JOURNAL* will be directed, and these will serve as an introduction and an invitation to the joys of hobbies rather than as a manual of detailed instruction. Although probably not everyone who would like to read about stamps would also be interested in model boats, or photography, or chess it is hoped that the Leisure Corner will offer a varied diet among hobbies, appealing to diverse tastes and inclinations.

MEDICAL MOTION PICTURES

NEW FILM ADDED TO A M A MOTION PICTURE LIBRARY

Infectious Hazards of Bacteriological Techniques: Part I. The Inoculating Needle 16 mm. black and white sound, showing time 10 minutes. Produced in 1951 by the Communicable Disease Center Chamblee Ga. Procurable on loan (service charge \$1) from Committee on Medical Motion Pictures, American Medical Association 535 N Dearborn St. Chicago 10

This film shows a series of experiments designed to determine whether or not bacterial aerosols are produced during the performance of many accepted bacteriological procedures even when the greatest precautions are taken. The technician uses *Serratia indica* as the culture and detects aerosols of this culture by means of seven sieve type air samples, each containing an agar culture plate and taking in 1 cu ft of air per minute from the working area. The experiments show that even in such common procedures as shaking liquid cultures, transferring cultures bubbling or mixing with a pipette, and blending, bacterial aerosols are produced that may infect the technician. Ways of lessening the dangers are also presented.

Didactically, the film is very satisfactory. It must be realized, however, that this is just one source of infection. The photography and narration are very well done. This film should be seen by everybody doing bacteriological work, including the young student of bacteriology in the medical school, the young student of medical technology, and also public health workers. It probably should be shown at regular intervals to remind these persons that they have to be constantly on the lookout, because they are handling materials dangerous to themselves and to others. It should also be shown to clinical pathologists as well as to pathologists in general, with the realization that a similar source of infection prevails not only in the pathology laboratory but in the autopsy room and in the laboratory of surgical pathology.

Reconstruction of the Esophagus by Jejunal Transplant 16 mm. color sound, showing time 31 minutes. Prepared by Ross Robertson M.D. and T. R. Sarjeant, M.D. Vancouver British Columbia. Produced in 1951 by and procurable on loan from Davis & Geck, Inc. 57 Willoughby St. Brooklyn 1

This film portrays one stage of a two stage operation in which a supposedly operable carcinoma of the esophagus is primarily bypassed by a jejunal transplant associated with an esophagojejunostomy. In this stage a segment of jejunum is thoroughly mobilized, but its arterial supply is maintained by the preservation of specific vessels which form the mesenteric arcade. Following the division of the jejunum, it is mobilized and placed through the mediastinum and delivered into the neck. The cervical phase of the operation has been conducted by another team, so that the upper esophageal segment is

visible and prepared for anastomosis. An additional anastomosis, intra abdominally reestablishes intestinal continuity. The author states that if the lesion is resectable, the involved segment is removed at a second operation, however, the determining factors that decide resectability were not evaluated. The illustration that shows the operation of Yudin is lost to the viewer because of the smallness of the diagram, the lack of detail, and the want of color. Since practically all of these patients are poor risk cases because of inanition one would appreciate some statement as to the preoperative preparation of this heroic procedure. The meticulous dissection that is required to preserve the vessels of the mesenteric arcade, plus the time consumed for two anastomoses, plus gastrostomy, makes one wonder as to the time factor of this procedure and to the amount of infusions and/or transfusions utilized. The operation was carefully performed. The technique is good, and the photography is very well done. The surgical exposure is excellent. It will take more time, however, to determine whether some of the less radical and less time consuming procedures might not result in a lower morbidity and mortality with a greater degree of palliation. This film can be recommended for thoracic surgeons, bronchoesophagologists, and general surgeons interested in surgery of the esophagus.

County and Community Recreation 16 mm black and white sound showing time 29 minutes. Produced in 1951 by and procurable on rental or purchase (\$100) from the Audio-Visual Center Indiana University Bloomington Ind.

This film is a study of community organization for reaching an objective. In this particular instance the objective was a recreation program, though it could have been any of several community activities. Various means by which the necessary funds for the recreation program can be obtained were well set forth. Committee members investigated the work of other committees and were developing a recreation program for their own county. The film gives an indication of the content of a community recreation program and suggests the benefits to be derived from it.

The pace is very slow during the first part of the film. The chairman's speeches are too long. Approximately the first third of the film is devoted to the various methods of financing a recreational program. No mention is made, during this section of the film, of what a recreation program is or of the benefits that may be derived from it. In short, the methods for initiating the program are presented before the audience has a clear insight into what is being proposed. The film would be suitable for almost any grade level, though it would have its greatest usefulness as a means of suggesting to adult groups and the legislative bodies of local government ways and means by which recreation programs could be developed by them in their own communities.

Heredity and Pre-Natal Development 16 mm black and white sound showing time 21 minutes. Produced in 1950 by the National Film Board of Canada. Procurable on purchase (\$100) from McGraw Hill Book Co. Text Film Department 330 W 42nd St. New York 36 or on rental from local film libraries.

This film gives a step by step picturization of the growth subdivision, and eventual union of male and female sex cells. Discussion includes an explanation of chromosomes and genes in determining sex and in transmitting physical and mental characteristics to offspring. Stress is laid on the modification of these traits by training and environment. The film describes the fertilization of the ovum by the sperm cell at conception and traces the development of the fetus until delivery. A section of the film on the newborn considers the development of the basic physiological actions of breathing, eating and elimination. This material is presented with a truly remarkable and extremely commendable combination of objective scientific fact with occasional fanciful touches that save the film from becoming oppressive. The photographic and sound quality are excellent. This film will be of value to anyone interested in the subject. It will be of greatest value in biology courses on the senior high school and junior college levels. The picture will also be extremely helpful to physicians called on to discuss this subject before audiences of adolescents (ages 14 to 18) and groups of young mothers.

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

American Journal of Clinical Pathology, Baltimore

23 205-310 (March) 1953

- Paper Electrophoresis of Serum Proteins with Micro-Kjeldahl Nitrogen Analysis of Protein Fractions Comparison with Free Electrophoresis and Salt Fractionation Methods B Levin and V G Oberholzer —p 205
Effects of Cancer Chemotherapeutic Agents on Dehydrogenase Activity of Human Cancer Tissue In Vitro M M Black and F D Speer —p 218
Method for Removal of Parotid Glandular Tissue at Necropsy L B Thomas P T Sloss and J E Edwards —p 228
Neuropathologic Considerations for General Pathologist B W Lichtenstein —p 232

American Journal of Ophthalmology, Chicago

36 301-432 (March) 1953

- Isolation of Virus as Cause of Behcet's Disease F N Sezer —p 301
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*Central Retinal Vein Thrombosis J V Cassidy —p 331
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Perforating Injuries of Globe. J R Duke and R. A Schimek —p 375
Moniliasis Review and Report of First Case Demonstrating Candida Albicans in the Cornea D L Mendelblatt —p 379

Central Retinal Vein Thrombosis.—Anticoagulant therapy has been advocated by some for the treatment of thrombosis of the central retinal vein, whereas others regard this form of treatment as ineffective. To obtain more information about this problem, Cassidy reviewed 54 cases of central retinal vein thrombosis that he had observed during the past 10 years. Treatment consisted in general hygienic measures such as rest, attention to hypertension or diabetes or other systemic disease, and the use of vasodilators such as nicotinic acid, Priscol (2-benzyl-2-imidazoline), and other indicated therapy including rutin and vitamin P. Anticoagulant therapy was used in 10 of these 54 cases for two weeks to 16 months. Anticoagulant therapy was started relatively early, but only two patients retained or recovered better than 20/200 vision. The other eight patients did not improve or became worse. The author stresses that central retinal vein thrombosis usually occurred in older persons with hypertension. The onset was sudden, but often there was some premonitory visual disturbance. Emotional upsets, trauma, systemic diseases, or vasomotor disturbances may have been contributory factors in some cases.

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Titles marked with an asterisk (*) are abstracted

Papilledema, retinal hemorrhages, exudates, and tortuous veins were found in the affected eyes. Reestablishment of retinal circulation did not affect the profound loss of vision. Anti-coagulant therapy, when used, did not appreciably influence either the retinal appearance or the recovery of function. There was no appreciable improvement in vision with or without anticoagulant therapy. Hemorrhagic glaucoma occurred in 9 of the 54 cases. In all of these, vision was lost. Six of the nine required enucleation to alleviate the severe symptoms. The prognosis of central retinal vein thrombosis is extremely grave and shows a direct relationship to the age and hypertension of the patient. There is no effective treatment.

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Experimental Infection and Streptomycin Treatment in Irradiated Mice. R Q Marston L Gonsberry J M Alderman and W W Smith —p 365
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Am Practitioner & Digest of Treatment, Philadelphia

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Marital Counselling A P Hudgins —p 189
How to Begin Marriage Counselling A P Hudgins —p 192
Giant Hydronephrosis Diagnosed as Ascites I H Friedman —p 195
Pseudomonas Meningitis M. Cutler and P Cutler —p 200
Bronchial Asthma Review of 400 Cases in Veterans of World War II B T Fein —p 206

Anesthesiology, Philadelphia

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Principles of Resuscitation H G Swann —p 126
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Operative Course of Digitalized Surgical Patients W F Powell —p 159
*Prevention of Atelectasis or Pneumonia Following Abdominal Operations. B A Greene and S Berkowitz —p 166
Diagnosis and Treatment of Hypotension During Anesthesia C. R. Stephen W K Nowill and R. Martin —p 180
Respiratory Obstruction at Glottic Level J J Snyder and R T Gants —p 195

Prevention of Atelectasis or Pneumonia Following Abdominal Operations.—According to Greene and Berkowitz, the primary step in their program of prevention of postoperative atelectasis or pneumonia, or both, is the detection of the patient with a predisposing tracheobronchial abnormality. This is most simply and reliably performed by the use of a test cough requested of the patient just before the induction of anesthesia. In the patient with a normal, 'dry' response a major pulmonary complication does not develop, regardless of the type of operation and anesthesia, and the patient does not need any special prophylactic care provided the respiratory tract does not acquire excessive mucus stimulated by anesthesia and is

not contaminated with gastric contents or blood during and after operation. A patient with a "wet" or "self propagating" test cough or one who has aspirated material into the respiratory tract is a likely candidate for atelectasis or pneumonia only if he is subjected to a period of respiratory depression or interference with the ability to cough vigorously during or after operation, or both. The duration of the required period of cough inhibition varies inversely with the wetness of the bronchial tree. Such patients may be uniformly protected by inducing a vigorous cough as soon as the anesthesia has diminished to the point of permitting a vigorous cough. Voluntary coughing or the involuntary paroxysm produced by antecubital intravenous injection of 2 cc of paraldehyde is usually sufficient to protect the mildly predisposed, cooperative patient; it cannot be relied upon for the patient with severely wet bronchitis who undergoes any major operation or in the mildly predisposed patient after upper abdominal or thoracic procedures. In these patients a vigorous cough should be induced routinely by synergetic tracheobronchial aspiration as soon as the patient has recovered the ability to cough forcefully. The soundness of this concept was proved by the results of a study of 2,246 major and 3,517 minor surgical patients managed in accordance with the authors' program. Only one instance of mild atelectasis appeared in this group, which included 223 subtotal gastrectomies and 359 biliary procedures. In the control group of 822 major operations there were 215 subtotal gastrectomies with 37 instances of atelectasis or pneumonia, including one death, and 413 biliary procedures with 42 cases of atelectasis or pneumonia, including one death. As a result of their experience the authors state that atelectasis and pneumonia are preventable by a strict regimen of detecting the abnormal tracheobronchial tree in the predisposed patient and removing potentially obstructing material by vigorous coughing induced during the early postoperative period. The appearance of atelectasis or pneumonia within 48 hours after an abdominal operation can, except for rare instances, be regarded as evidence of imperfect anesthetic care since the authors have demonstrated that it was almost wholly prevented by a program dependent on methods of diagnosis, prognosis, and prophylaxis specifically within the domain and capabilities of the anesthesiologist.

Annals of Allergy, Minneapolis

10 675 826 (Nov-Dec) 1952

- Allergenicity of Modified and Processed Foodstuffs. I. Use of Dual Ingestion Passive Transfer Test to Determine Allergenicity of Foodstuffs in Man. B. Ratner, S. Untracht and C. Collins-Williams—p 675
- Id. II. Orange Anaphylactogenic Properties of Specially Prepared Infant Orange Juice Determined in Guinea Pig. B. Ratner and J. S. Thomas—p 682
- Id. III. Peanut Non Allergenicity of Peanut Oil. B. Ratner, S. Untracht, C. Collins-Williams and others—p 690
- Serum Levels of Potassium Phosphorus and Sodium During Exudative Phase of Infantile Eczema. R. S. Owings and K. Riley—p 698
- Synthetic Vitamin A in Treatment of Eczema in Children. A. V. Stoesser and L. S. Nelson—p 703
- Etiological Diagnosis of Bronchial Asthma. J. A. Mansmann—p 705
- Mesquite and Related Plants in Allergy. F. W. Bleberdorf and B. Swinny—p 720
- Further Notes on Clinical Use of Ambodryl Hydrochloride. Summary of Clinical Observations on 81 Patients Receiving Capsular Form and Some 60 Patients Receiving Elixir Ambodryl Hydrochloride. J. W. Thomas and F. R. Kelly Jr—p 725
- Allergy in Sinusitis. J. W. Hampsey—p 727
- Mold Culture by Dialysis. J. M. Quintero—p 731
- Allergy and Industry. H. G. Gardiner—p 732
- *Allergic Problems in Modern Industry. Prevention and Control. R. L. Suskind—p 745
- *Evaluation of Industrial Dermatitis by Analyzing Its Pattern. G. L. Waldbott—p 755
- Triode in Bronchial Asthma. H. D. Ogden, F. P. Incaperra, J. S. Salatch and C. J. DiChary—p 759
- Chlor Trimeton Maleate Repeat Action Tablets in Treatment of Pruritic Dermatoses. R. S. Lackenbacher—p 765
- Management of Allergic Child. S. S. Stevenson—p 770

Prevention and Control of Allergic Conditions in Industry.—Whenever a chemical substance is introduced into an industrial process, it is advisable to determine its toxicological properties and to ascertain whether it will irritate or sensitize the skin. The author discusses the advantages and limitations of several methods that may be employed to ascertain the sensitizing

capacity or potential allergenicity of chemical compounds, such as the guinea pig technique, the patch test technique, and usage tests. Safety engineering measures are most effective in the safeguarding of an operation, which employs a sensitizer or irritant. Exposure should be prevented by enclosing the process involving the hazardous compound. If complete enclosure is not possible, a hygienic program must be instituted so that the worker has minimal contact with the sensitizing material by spillage, handling, and exposure to vapors and dusts. He must understand the safety program, and must have available adequate washing facilities. Persons who have (1) recurrent eczematous contact dermatitis from other industrial contactants, (2) seborrheic dermatitis, (3) dermatophytosis with an "id" reaction, (4) stasis syndrome, (5) ichthyosis, (6) pompholyx, and (7) other skin problems that result in itching and scratching should not be assigned to operations involving contact with sensitizing substances. The measures to be taken when an outbreak of dermatitis occurs in a plant are also discussed. Industrial dermatology and allergy have become as complex as the industrial scene itself. Cutaneous and allergic problems that arise in industry require the joint experience of personnel trained in industrial hygiene, toxicology, chemistry, dermatology, and allergy. Several teams are now active in this field, but their number is still small by comparison to the expanding requirements of industry.

Evaluation of Industrial Dermatitis by Analyzing Its Pattern.

In the past the principal means of detecting the causes of contact dermatitis have been history taking and patch testing. Waldbott here demonstrates how the analysis of a pattern of a lesion can be a most valuable aid in the appraisal of an industrial lesion. A hospital clerk presented a chronic, severe dermatitis on both hands which had started when he took up his present job. The areas of the hands involved by the lesions were those that would come in contact with a flat surface. In addition, it involved an area on the knuckles. The flat surface responsible was identified as a rubber pad on his desk. The eruption on the knuckles occurred because the patient was an amputee and had to lean heavily on the rubber desk pad when getting up from his desk. This and several other cases demonstrate Waldbott's contention that the pattern of a skin lesion can be very important in establishing its etiology.

Arkansas Medical Society Journal, Fort Smith

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- Polypoid Disease of Colon and Rectum and Its Relation to Cancer with Special Consideration of Surgical Management. J. Laurens—p 157
- Treatment of Liver Failures. A. Kahn Jr—p 160
- Tumors of the Neck. T. P. Foltz—p 165

Bacteriological Reviews, Baltimore

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- On Chemistry and Function of Coenzyme A¹. F. Lipmann—p 1
- Symposium on Mode of Action of Antibiotics. O. Wyss, G. N. Smith, G. L. Hobby and others—p 17
- Dimorphism Phenomenon in Yeasts. G. H. Scherr and R. H. Weaver—p 51

Bulletin of Johns Hopkins Hospital, Baltimore

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- Respiratory Exercises for Chronic Pulmonary Emphysema. M. E. Miller—p 185
- Allergic Reactions to Therapeutic Agents. Treatment with Adrenocorticotrophic Hormone (ACTH) or Cortisone. L. E. Shulman, E. H. Schoenrich and A. M. Harvey—p 196
- *Hypokalemia Occurring During Para-Aminosalicylic Acid Therapy. P. A. McIntyre—p 210
- Electron Microscopic Studies of Alteration of Collagen Fibrils in Arthus Phenomenon. A. R. Rich, G. A. Volosin and F. B. Bang—p 222
- Detection of Pregnanolol and Pregnantriol in Urine of Patients with Adrenal Hyperplasia. Suppression with Cortisone. Preliminary Report. A. M. Bongiovanni—p 244

Hypokalemia During Para-Aminosalicylic Acid Therapy.—Because a patient receiving *p*-aminosalicylic acid had two separate episodes of hypokalemia early in the course of therapy with this drug, studies were made to determine the incidence of hypokalemia in a selected number of patients treated with *p*-aminosalicylic acid, and to determine common factors in

such patients that might suggest the mechanism by which this drug produces a low potassium syndrome. In 8 of 38 tuberculous patients who were treated with *p*-aminosalicylic acid, hypokalemia was definitely established, 2 were considered as probably having hypokalemic episodes, and in 3 hypokalemia seemed possible, the remaining 25 patients showed no evidence of hypokalemia. Occurrence of hypokalemia could not be related to the dose of *p*-aminosalicylic acid. All but one of the 13 patients with proved, probable, or possible hypokalemia had severe, persistent vomiting and diarrhea. The other patient in this group had suggestive evidence of diarrhea. In contrast, only one of the 25 patients with no evidence for hypokalemia had severe and persistent gastrointestinal disturbances while receiving the drug. Although it is recognized that initial subclinical potassium deficit and the effect of increased ingestion of sodium contained in the sodium salt of *p*-aminosalicylic acid may be important contributory factors, it is suggested that the hypokalemia seen in these patients receiving *p*-aminosalicylic acid is in large measure secondary to gastrointestinal disturbances associated with the administration of this drug.

Circulation, New York

7 321-480 (March) 1953

- Ballistocardiography II Normal Ballistocardiogram W B Thompson M B Rappaport and H B Sprague—p 321
- Responses of Ballistocardiogram in Hypertensive Patients to Acute Administration of Apresoline Hexamethonium Veratrine Regitane and Sodium Amytal D C Roehm R C Kory and G R Meneely—p 329
- Phenolic Compounds in Treatment of Rheumatic Fever II Metabolism of Gentisic Acid and Ethanolamide of Gentisic Acid N E. Clarke and R E Mosher—p 337
- *Cardiovascular Collagenosis with Parietal Endocardial Thrombosis Clinicopathologic Study of 40 Cases B J P Becker C B Chatgidakis and B van Lingen—p 345
- Weight of Heart and Its Chambers in Hypertensive Cardiovascular Disease With and Without Failure R S Jones—p 357
- *Phlebodinia—New Epidemic (?) Disease. J S Pearson—p 370
- Cardiovascular Lesions in Arachnodactyly E M Goyette and P W Palmer—p 373
- Mercurial Diuretics Replacement of Parenteral Administration by New Oral Preparation in Ambulatory Patients with Chronic Congestive Heart Failure S P Dimittroff M C Thorner and G C Griffith—p 380
- Temporary Hemiplegia from Cerebral Injection of Diodrast During Catheter Aortography Report of Two Cases E C Peirce II—p 385
- Quantitative Metabolic Defect in Lipid Metabolism Associated with Abnormal Serum Lipoproteins in Man M W Biggs and D Colman—p 393
- Spatial Vector Analyzer for Conventional Electrocardiogram E Simonson—p 403
- Effects of Posture on Renal Excretion of Sodium and Chloride in Orthostatic Hypotension D M Bachman and W B Youmans—p 413
- Acute Effects of Elevation of Coronary Sinus Pressure R W Eckstein, J C Hornberger and T Sano—p 422
- Thyroid and the Circulation E. C Andrus—p 437
- Recent Myocardial Infarction. E N Silber and L N Katz—p 445

Cardiovascular Collagenosis with Parietal Thrombosis.—

Necrosis or fibrosis of the endocardium with overlying mural thrombosis in the absence of gross vascular disease appears to have been described under a variety of terms, such as endocarditis parietalis fibroblastica, fibrosis of the endocardium and myocardium with mural thrombosis, endocardial fibrosis, endomyocardial necrosis, primary subacute myocarditis, myocarditis perniciosa, and chronic fibroblastic myocarditis. In this paper Becker and his associates present observations on 40 cases of endocardial thrombosis that were selected for pathological study from a total of 9,500 autopsies performed at the University of the Witwatersrand, Johannesburg South Africa, during 1936 to 1951. Widespread involvement of the connective tissue throughout the body and particularly in the heart was demonstrated. Although the histological features were similar to those found in the "diffuse collagen diseases," they did not show the characteristic lesions of rheumatic fever, periarteritis nodosa, lupus erythematosus, or diffuse scleroderma. A rapidly progressive heart failure, together with the pathological findings, were sufficiently distinctive to consider this condition cardiovascular collagenosis with parietal thrombosis. Congestive cardiac failure was the cause of death in all cases and was manifested by edema, ascites, pleural effusions, and chronic venous congestion of the viscera. Solitary or multiple infarction of one or more viscera was found in 78% of patients. The lungs, spleen, kidney, and brain were the organs usually infarcted. The cardiac lesion was characterized by an enlarged,

dilated heart, usually without hypertrophy, mural thrombosis, especially in the left ventricle, subendocardial necrosis or fibrosis, fibrosis or necrosis of papillary muscles, focal or diffuse thickening of the endocardium, and absence of significant lesions in the pericardium, cardiac valves, coronary vessels, or aorta. Depending on the histological features, the authors differentiate between an acute, subacute and chronic form of the disease. The histological and clinical features are described in detail.

Phlebodinia, A New, Possibly Epidemic, Disease.—Pearson directs attention to a previously unreported syndrome. The common characteristic of the 22 nurses who presented the syndrome was incapacitating pain and exquisite tenderness along the course of the superficial venous tracts of one or more extremities. The first two patients were thought to have recurrent phlebothrombosis, although they did not present the usual phenomena of arterial spasm, skin discoloration, or edema of the involved extremity. One of these first patients was subjected to ligation and resection. On resection, the vein wall was thought to be thickened, but no thrombus was found. After more cases occurred in the student nurse population, it was felt that there might be an epidemiological problem. With this in mind, the Communicable Disease Laboratory of the National Institute of Health was called in. The representatives of this organization spent several days exhaustively studying all aspects of the outbreak without any positive results. Blood and serum specimens were collected from all cases and subjected to tests, cultures, and agglutinations without positive results. Veins were sectioned and sent to various pathologists, who did not agree and did not reach a specific diagnosis. Many of the newer antibiotics were tried in the treatment, but without effect. Prolonged bed rest with elevation of the leg caused a remission, but there was a recurrence in several cases.

Diseases of Chest, Chicago

23 241 356 (March) 1953

- *Intermittent Viomycin Therapy in Pulmonary Tuberculosis Employed Singly and in Combination with Intermittent Streptomycin or Daily *p*-Aminosalicylic Acid F W Pitts E T O Dell M J Fitzpatrick and others—p 241
- *Segmental Resection in Tuberculosis R H Overholt, F M Woods and N J Wilson—p 255
- Critique of International Nomenclature on Bronchopulmonary Segments. E A Boyden—p 266
- Some Basic Biologic Effects of Cortisone as Related to Pulmonary Disease D M Spain—p 270
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- Pericardial Cyst G Yelin and A Abraham—p 285
- Primary Carcinoma of Lung in the Aged A H Aufses—p 288
- Hemangio-Endothelioma Arising in Mediastinal Teratoma T Ehrenreich A J Freund and H N Shapiro—p 294
- Esophageal Carcinoma with Alveolar Cell Tumor of Lung A J Flaxstone—p 304
- Report on Use of Carbarsone in Pulmonary Tuberculosis M B Kress—p 309
- Kymography of Diaphragm, M E Galarza—p 313
- Diagnosis and Management of Esophageal Hiatus Hernia J Shaiken—p 320
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- Effect of Chronic Pulmonary Suppuration on Gastric Mucosa M E. Dalley and H C. Barton—p 336
- Phrenic Paralysis Following Cervical Rib Resection E. Rothstein—p 339

Viomycin Therapy in Pulmonary Tuberculosis—Of 80 men with moderately or far advanced pulmonary tuberculosis and with sputums positive by culture for *Mycobacterium tuberculosis* before the institution of treatment, 36 received 1 gm of viomycin at 8 a m and at noon and 1 gm of streptomycin at 8 p m every third day. Twenty-two patients were given 2 gm of viomycin in two divided doses every third day and 12 gm of *p*-aminosalicylic acid daily, the remaining 22 patients received 2 gm of viomycin in two divided doses every third day. Viomycin and streptomycin were administered intramuscularly and *p*-aminosalicylic acid orally. Duration of treatment in all patients was 120 days, except in one patient in whom drugs were discontinued because of toxic side-effects. Results suggested that viomycin is capable of exerting a favorable effect on the clinical course of pulmonary tuberculosis. The therapeutic effectiveness of viomycin was considerably less than that of streptomycin, but approximated that of

p-aminosalicylic acid Viomycin combined with either streptomycin or *p*-aminosalicylic acid was superior to any of the drugs employed alone. There was a high incidence of mild untoward reactions to viomycin, such as significant pain at the site of intramuscular injection in 32 patients, fever in 21, and drug rash in 14. For this reason prolonged administration beyond 120 days was impractical in the few patients in whom it was attempted. Mild renal irritation was evidenced in most patients by occasional cylindruria and slight albuminuria, which disappeared after termination of viomycin therapy. Serious eighth cranial nerve dysfunction and serum electrolyte disturbances were not observed. The high incidence of clinical and laboratory toxicity from intermittent viomycin was predominantly minor, transient, and reversible after termination of therapy. This is in striking contrast to toxicity reported when viomycin is administered daily. It is believed that viomycin is a relatively safe drug when administered intermittently, provided its potential toxicity is appreciated and appropriate clinical and laboratory surveillance is maintained.

Segmental Resection in Tuberculosis—Of 539 patients who had various types of resection of lung tissue for pulmonary tuberculosis between 1947 and 1952, 123 underwent segmental resection. This group was followed six months to four and a half years. Of the 123 patients, 75 had only segmental resection and 48 had segmental resection and lobectomy. Fifty of the 75 patients had primary resections, while 25 had previous surgical procedures. The tuberculous death rate was low in all groups, but it is significant that there was none in the primary resection group. Nontuberculous deaths from pulmonary embolus, hemorrhage from a contralateral cavity and pulmonary insufficiency occurred just half as frequently in the primary as in the secondary resection groups (4% vs 8%). Serious complications, such as ipsilateral exacerbation, fistula, empyema and bilateral spread, occurred only in the secondary group. Results obtained with segmental resection were excellent when it was used as the primary procedure in patients with lesions well limited to the segment or segments being resected. Poor results were observed when segmental resection was used in patients with widespread disease or when used as a secondary procedure. The excellent results obtained are a reflection of the limited disease and the excellent condition of the patients. Three cases are described to illustrate problems in the treatment of pulmonary tuberculosis for which segmental resection was applied by the authors.

Endocrinology, Springfield, Ill

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- In Vitro Bioassay of Corticotrophin. M Saffran and M J Bayliss—p 140
- Potency of Certain Desoxycorticosterone Esters with Respect to Production of Hypertension and Cardiovascular Lesions. C. E. Hall and O. Hall—p 157
- Quantitative Study of Vascularity of Adrenal Gland of Rat During Pregnancy and After Cortisone Treatment. M. E. Davis, E J Plotz and E Plotz—p 164
- Effect of Iodide and Thyroid on Production of Tumors of Thyroid and Pituitary by Propylthiouracil. E A Sellers, J M Hill and R. B Lee—p 188
- Biochemical Properties of Fractions Obtained from Rat Anterior Pituitary Glands by Differential Centrifugation. W H McShan, R Rozich and R K Meyer—p 215
- Response of Preputial and Adrenal Glands of Hypophysectomized Rats to ACTH. M Hess, E G Rennels and J C Finnerty—p 223

Illinois Medical Journal, Chicago

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- Urological Problems in Infants and Children. K E Barber—p 157
- Limitations of Hormonal Therapy in Gynecology. C L Buxton—p 159
- Allergy in Relation to Deafness. G E Shambaugh Jr.—p 164
- Present Day Management of Diseases of Thyroid. L. M. Zimmerman—p 166
- Importance of Electrolytes in Various Cardiac Conditions. P Gaberman—p 169
- Principles of Drug Therapy in Hypertension. L. N. Katz—p 171
- Treatment of Anterior Laryngeal Stenosis by Tantalum Plate Implant. A H Andrews Jr and M J Tamari—p 175

Journal of Aviation Medicine, St Paul

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- Respiratory Effects of High Intrapulmonic Pressure at Simulated Altitude of 72,000 Feet (30 mm Hg). J P Kempf and F A Hitchcock—p 5
- Involuntary Hyperventilation During Pressure Breathing at 43,000 Feet. A L. Hall—p 14
- Some Particular Effects of Explosive Decompressions on Animals. R. Grandpierre, P Grognot and F Violette—p 20
- Studies on Ease with Which Pilots Can Grasp and Pull the Ejection Seat Face Curtain Handles. L. B Cochran—p 23
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- Variations of Rate of Sanguine Eosinophiles of Man Submitted to an Ultra-Sonorous Vibration of Same Characteristics as that Produced by Certain Turbo-Reactors. P A Grognot—p 73
- Possibility of Obtaining an Anoxic Anoxia Polyglobulia by Means of Conditioned Reflex. T Lo Monaco—p 77

Journal of Clinical Investigation, New York

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- Critical Comparison of T 1824 Dye and Iodinated Albumin Methods for Plasma Volume Measurement. A L. Schultz, J F Hammarsten, B I Heller and R V Ebert—p 107
- Electrolyte Equilibria in Erythrocytes During Diabetic Acidosis. G Nichols Jr and N Nichols—p 113
- Observations Concerning Cholate Cholesterol Relationship in Clinical and Experimental Nephrosis. R H Rosenman, M Friedman and S O Byers—p 121
- Effects of Intravenous Priscoline on Cerebral Circulation and Metabolism. P Scheinberg, I Blackburn and M Rich—p 125
- Studies of Pulmonary Hypertension. I Pulmonary Circulatory Dynamics in Patients with Pulmonary Emphysema at Rest. P N G Yu, F W Lovejoy Jr, H A Joos and others—p 130
- Simultaneous Distribution of T 1824 and ¹²⁵I Labelled Human Serum Albumin in Man. N Freinkel, G E Schreiner and J W Athens—p 138
- Effect of Thyrotrophic Hormone Preparation on Metabolism of Radio Iodine in Euthyroid, Hyperthyroid and Acromegalic Individuals. D V Becker, J E Rall, W Peacock and R W Rawson—p 149
- Method for Determining Cardiac Output by Direct Fick Principle Without Gas Analysis. J Grossman, R E Weston and L Lefter—p 161
- Hexamethonium—Its Effect on Glomerular Filtration Rate, Maximal Tubular Function and Renal Excretion of Electrolytes. J H Moyer and L C Mills—p 172
- *Dietary Treatment of Hypertension. III. Effect of Protein on Appetite and Weight. V P Dole, L K Dahl, L L Schwartz and others—p 185

Effect of Protein on Appetite.—In an earlier study it was observed that patients rapidly lost weight following a change in diet from a conventional pattern to the rice fruit diet of Kempner. Although the imbalance was temporary, as shown by the approach to stable weight and nitrogen balance during the next four months, the weight remained at the lower level. During the period of rapid weight loss, the patients took a reduced number of calories as compared to their previous consumption. However, as the weight approached stability, the intake of calories rose to the neighborhood of the control values. In the subsequent study, which was directed mainly to the role of sodium, it was found that extreme changes in the ration of sodium had no important effect on the appetite or weight. It was surmised that the restriction of dietary protein to about 35 gm per day, which appeared as an incidental restriction when dietary sodium was limited to 4 mEq per day, was the factor that caused the reductions in appetite and weight. In the present study this hypothesis has been given a systematic test. Essentially the same basal diet has been employed with the addition of a salt-free milk product that permitted large variations in the intake of protein while the ration of sodium was held constant. Six patients with uncomplicated hypertension served as subjects for the present study. The reduction of blood pressure following restriction of dietary sodium was found to be independent of tenfold variations in the ration of dietary protein, and unaffected by

prior or subsequent reduction of body weight. The data indicate that restriction of dietary sodium may be expected to reduce the systolic and diastolic blood pressures by $12 \pm 7.4\%$. The ration of protein, under the conditions of this study, was seen to determine the appetite and the body weight of each patient. It might seem odd that patients lost weight when changed from one adequate diet to another, but the result can be explained on the hypothesis that the reduction of body mass is an adaptation to the reduction of dietary protein. The lack of hunger or weakness during the loss of weight indicated that the diet might be of some use in the treatment of obesity.

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- Specific Inhibitor for Human Desoxyribonuclease and Inhibitor of Lupus Erythematosus Cell Phenomenon from Leucocytes. N. B. Kurnick, L. I. Schwartz, S. Pariser and S. L. Lee.—p. 193
- Cerebral Blood Flow and Oxygen Consumption in Hyperthyroidism Before and After Treatment. L. Sokoloff, R. L. Wechsler, R. Mangold and others.—p. 202
- Observations on Volume of Distribution of Insulin in Anuric Subjects. J. T. Finkstaedt, M. P. O'Meara and J. P. Merrill.—p. 209
- Value of Needle Biopsy in Chemical Estimation of Liver Lipids in Man. B. H. Billin, H. J. Condon, D. E. Hein and L. Schiff.—p. 214
- Comparison of Effects of Nor Epinephrine Synthetic Epinephrine and USP Epinephrine upon Cerebral Blood Flow and Metabolism in Man. W. Sensenbach, L. Madison and L. Ochs.—p. 226
- Effect of Arteriovenous Fistula on Renal Hemodynamics and Electrolyte Excretion. F. H. Epstein, R. S. Post and M. McDowell.—p. 233
- Effects of Quiet Standing on Solute Diuresis. A. V. N. Goodyer and D. W. Seldin.—p. 242
- Glycogen Content of Human Leukocytes in Health and in Various Disease States. W. N. Valentine, J. H. Follette and J. S. Lawrence.—p. 251
- *Metabolic and Renal Studies in Chronic Potassium Depletion Resulting from Overuse of Laxatives. W. B. Schwartz and A. S. Relman.—p. 258

Potassium Depletion from Overuse of Laxatives.—It is well known that diarrhea caused by a variety of gastrointestinal disorders may lead to potassium depletion. This paper presents observations on two otherwise healthy women who, prior to this study, had gradually developed severe potassium depletion and hypokalemia as the result of chronic diarrhea induced by overuse of laxatives. Although in each instance there had been a loss of approximately one third of total normal body potassium, there were no other significant disturbances of water and electrolyte balance and no overt signs of malnutrition. These two subjects thus presented an unusual opportunity to observe the clinical and physiological effects of uncomplicated potassium depletion. Neither of the patients had any overt neuromuscular symptoms or signs, and it was only through the discovery of T-wave changes in routine electrocardiograms that hypokalemia was discovered. There were no other disturbances of serum electrolytes except for slight elevation of plasma bicarbonate in one patient. Red cell sodium, potassium, and phosphorus concentrations were normal. Renal excretion of potassium was very low. When laxatives were withdrawn and the patients given normal oral intakes of potassium, each retained an amount of potassium roughly equivalent to one half the total initial body potassium content without significant retention of nitrogen or phosphorus. Changes in total exchangeable potassium were approximately equal to the actual potassium retention. In both instances potassium retention was accompanied by a large but transient retention of sodium. Internal balance calculations indicated that cellular uptake of potassium was approximately equal to the estimated loss of intracellular sodium and that total initial intracellular cation concentration was markedly reduced. Excretion of ammonium was relatively high initially and during correction of the potassium deficit ammonium diminished rapidly without significant change in urine pH or titratable acidity. Ability to concentrate the urine was impaired in both patients prior to treatment, but was restored to normal after correction of the potassium deficit. Clearance studies begun immediately after treatment revealed slight reductions in glomerular and tubular function in the first patient, but severe depression in these functions in the second patient. After correction of the potassium deficit all functions gradually returned to normal. It is suggested that renal dysfunction may account for certain disturbances in water and electrolyte metabolism observed in potassium deficiency.

Journal of Infectious Diseases, Chicago

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- Effect of Sodium Copper Chlorophyllin on Growth and Acid Production of Some Oral Bacteria. S. A. Koser and E. A. Hodges.—p. 10
- Polysaccharide Medium of Known Composition Favoring Chlamydispore Formation in *Candida albicans*. W. J. Nickerson and Z. Mankowski.—p. 20
- Further Studies of Pathogenicity and Immunogenicity of Mucoid Variants of *Brucella abortus* for Guinea Pigs. L. M. Jones.—p. 26
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- Nature of Sparing Phenomenon II. Activity *In Vivo* and Nature of Sparing Substance. E. R. Becker and T. M. Schwink.—p. 74
- Laboratory Studies of *Histoplasma capsulatum* II. Size of Spores. G. C. Cozad and M. L. Furcolow.—p. 77
- Effect of Ultraviolet Irradiation on Immune Serum. J. R. Battisto, R. B. Pringle and W. J. Nungesser.—p. 85
- Flocculation Reactions in Rabbits Experimentally Infected with *Trichinella spiralis*. E. H. Thomas, J. Bozicevich and H. M. Hoyem.—p. 89

Journal of International College of Surgeons, Chicago

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- Surgical Management of Diverticulitis of Sigmoid. C. G. Lenhart and J. P. Fleming.—p. 135
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- Traumatic Rupture of Uterus Simulating Torsion of Testis. Report of Case. J. A. Gowans.—p. 250

Journal of National Medical Association, New York

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- *Use of Pyrazinamide (Aldinamide) in Treatment of Tuberculous Lymphadenopathy and Draining Sinuses. Preliminary Report. J. W. V. Cordice, Jr., L. M. Hill and L. T. Wright.—p. 87
- Test of Abnormal Plasma Globulin in Tuberculosis. N. P. Gillem and L. H. Newman.—p. 99
- Skin Pigmentation. Review of Recent Advances in Knowledge and Therapy. J. A. Kenney, Jr.—p. 106
- Cancer of the Tongue. J. E. White.—p. 113
- Experimental Studies in Carbohydrate Metabolism. W. L. Henry, Jr.—p. 117
- Retroperitoneal Prostatectomy. M. B. Herriford and R. E. Bacon.—p. 123

Pyrazinamide in Tuberculous Lymphadenopathy.—This report is concerned with 19 patients in whom pyrazinamide (Aldinamide) was employed for the treatment of tuberculous lymphadenitis and draining sinuses. Seven of the 19 patients received surgical treatment in the form of excision of diseased nodes and sinuses. The remaining 12 patients received no surgical treatment, except that in 3 of them fluctuant masses were aspirated. Treatment with pyrazinamide was continued for from 11 to 90 days, averaging approximately 70 days in the group not operated on and 22 days in the patients who also received surgical treatment. The dosage schedule was 1 gm three times daily for all except the smaller children and one

elderly patient, who received smaller doses. The total doses ranged from 70 to 220 gm and averaged 188 gm in those who were not surgically treated and 63 gm in those who also received surgical treatment. Toxic side reactions, in the form of dizziness and gastrointestinal upsets occurred in only one of the patients and subsided a week after the drug was discontinued. The immediate results of treatment were good in all instances. In five of the seven patients operated on primary healing took place, in the other two surgically treated cases healing was complete after three and five weeks respectively. The follow-up periods following cessation of treatment in the 12 who were not operated on averaged only slightly over eight weeks. Evidence of recurrence appeared in only one of these patients. In two instances there was evidence of resolution of pulmonary lesions. The cases reviewed will require further follow-up studies, but the authors feel that the use of pyrazinamide is justified in tuberculous lymphadenopathy.

J Pharmacology & Exper Therap, Baltimore

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Analeptic Action of 1-n-Butylamino-3-p-Toluidino-2-Propanol (W181) in Mephenezin Paralysis F. M. Berger—p 250

Journal of Thoracic Surgery, St. Louis

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- *Use of Suture Constriction of Upper Lobe in Treatment of Pulmonary Tuberculosis (Paulino Procedure) P. T. DeCamp T. G. Baffes J. W. Overstreet and A. Ochsner—p 219
Clinical Experience with Water Soluble Bronchography Compounds M. E. Peck, A. J. Neerken and E. Salzman—p 234
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Mediastinal Lipoma Successful Removal of 1700 Gram Mass Case Report and Review of Recent Literature of Intrathoracic Lipomas J. L. Keeley S. H. Gumbler A. C. Guzakus and J. A. Rooney—p 316
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Intrathoracic Irradiation of Hilum after Resection for Bronchial Carcinoma Preliminary Report W. E. J. Schneidrik—p 327

Suture Constriction in Treatment of Pulmonary Tuberculosis.

—A modified partial thoracoplasty and extensive pneumonolysis with collapse and compression of lung by suture ligatures, devised by the Brazilian surgeon Paulino, was employed by the authors 34 times in 31 patients with pulmonary tuberculosis, including bilateral operation in 3 patients. The disease was unilateral in four patients, bilateral in 27, moderately advanced in 5, and far advanced in 26. The unique feature of the procedure is the method of achieving collapse, and preventing reexpansion, of the diseased lung by three concentric purse-string ligatures of no. 10 crochet cotton placed about the lung and the overlying parietal structures which have been freed from the chest wall according to the Carl Sembr technique. Four of the 34 operations have been performed

only recently and, although adequate collapse has apparently been obtained and the patients are improved, it is too early to evaluate the results. Two patients were lost to follow up. Of the remaining 25 patients who were operated on more than seven months ago, the disease has become inactive in 5 for periods of 6, 8, 18, 18, and 22 months. The disease has been arrested in 13 additional patients for 4.5 to 24 months, with an average arrest of 12.3 months. Three patients were classified as active and improved, and one patient had only a single postoperative checkup and was classified as 'activity undetermined'. There were two early postoperative deaths from respiratory failure and massive pulmonary embolism on the 8th and 14th postoperative day respectively, and one late postoperative death from hemorrhage in the fifth month. As a result of their experience the authors state that the operation, which is performed in one stage, is safe, it minimizes costal resection, deformity, and loss of respiratory function, and has been applied successfully to bilateral disease. The Paulino procedure is recommended particularly when bilateral surgical procedures seem indicated or when the respiratory reserve is limited. As the operation has several additional advantages, it may also be used by election rather than the more extensive multistaged selective thoracoplasty of the Alexander type.

Journal of Urology, Baltimore

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Torsion of Appendix Epididymis and Appendix Testis Three Case Reports. G. R. Hamilton C. A. DeKovesy and R. J. Getz—p 436

Unusual Carcinomas Involving Prostate Gland—This report is based on a review of seven cases in which a squamous cell carcinoma apparently was confined to the prostate gland, eight cases in which a squamous cell carcinoma arose in the epithelium of the vesical neck and involved the prostate gland, six cases in which an adenocarcinoma of the rectum subsequently extended to the prostate gland, one case in which metastasis to the prostate gland occurred several years after operation for carcinoma of the stomach, and one case in which a mucoid carcinoma of the prostate gland developed after the removal of a carcinoma of the lung. In the majority of cases, the smooth, soft consistency of the prostate gland led the examiner to believe that a malignant lesion was not present. After the malignant character of the lesions had been recognized in the 23 cases cited here, hormonal therapy was found ineffective. There was no elevation of the serum acid phosphatase values in the cases in which the concentration of this enzyme was determined. The survival period following operation was much shorter than it usually has been in cases of adenocarcinoma of the prostate. While most of the varieties of carcinoma mentioned here have been described previously, the authors feel that the unusual features in some of the cases and the fact that not all prostatic carcinomas are adenocarcinomas deserved more emphasis.

Kansas Medical Society Journal, Topeka

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Maryland State Medical Journal, Baltimore

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Michigan State Medical Society Journal, Lansing

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 Leukoplakia of Oral Mucous Membrane Tongue and Anal Region Nine-Year Ingestion of Vitamin B Complex as Possible Etiologic Factor R C Moehlig —p 282
 *Management of Pain of Cancer J J Bonica —p 284
 Responsibilities of Local Health Departments in Cancer Control O K Engelke —p 291
 Is Progress Being Made in Cancer Control? C A Payne —p 296
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Management of Pain of Cancer—Many of the 200,000 persons who die each year from cancer in the United States suffer severe pain during their last months of life. The pain becomes progressively severer and finally develops into a boring, relentless, intolerably agonizing suffering that all too soon causes a physiological as well as psychological deterioration. The deplorable attitude of defeatism found in some quarters must be abandoned and replaced by courageous aggressiveness tempered by sane judgment. The following factors are

responsible for the pain: compression of nerve roots, trunks or plexus by the tumor or by pathological fractures of bones adjacent to the nerves, infiltration of nerves and blood vessels by tumor cells, resulting in perivascular or perineural lymphangitis and irritation of sensory nerve endings, and producing a diffuse burning pain, the so-called sympathetic pain; obstruction of a viscus, with production of true visceral pain; occlusion of blood vessels by the tumor, infiltration, tumefaction, and swelling in tissue invested snugly by fascia, periosteum, or other pain-sensitive structures, necrosis, infection, and inflammation of pain sensitive structures causing pain that is sometimes excruciating. The author briefly comments on the importance of psychological support for these patients and on palliative operation, but is concerned chiefly with nerve blocking. Analgesic block, when properly executed and effective, affords adequate relief without adding to the patient's discomfort. For pain of the face, mouth, tongue, throat, and neck, alcoholic injection of the trigeminal nerve or its branches, the glossopharyngeal and vagus nerves, and/or the upper cervical spinal nerves is usually very effective. Pain below the neck can be controlled for weeks or months with subarachnoid alcohol block, paravertebral block, or injections of peripheral or intercostal nerves. Since in many of these cases the sympathetic nervous system is involved in the pain mechanism, sympathetic nerve blocks are occasionally necessary to completely alleviate the pain.

Military Surgeon, Washington, D C.

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Minnesota Medicine, St Paul

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 Chronic Pharyngeal and Laryngeal Histoplasmosis Successfully Treated with Ethyl Vanillate Case Report H H Zinneman and W H Hall —p 249
 Premature Survival With Emphasis on Role of Public Health Nurse S S Scherling —p 253

Parenteral Nutrition.—In order that homeostasis be maintained when parenteral nutrition becomes necessary, it would seem reasonable that an artificial or parenteral food should supply elements resembling normal constituents as closely as possible. Consequently, the authors prepared a solution containing 12% invert sugar, 6% amino acids and 4% alcohol, which furnishes 1,000 calories per liter and approaches the ideal proportion in terms of normal human intake of the various food substances. A continuous infusion of this solution over several days by use of a polyethylene tube inserted through a no 15 needle into the basilic vein of the antecubital fossa has been studied in 57 cases to determine its effect on the patient's physiological processes in terms of fluid, nitrogen, and electrolyte balance. Results showed that invert sugar can be used in greater concentration without producing as much hyperglycemia or glycosuria as is produced from equivalent percentage of glucose. At the recommended rate of administration of 3,000 cc of the solution in 24 hours, or a liter every eight

hours, the blood alcohol elevation proved to be almost negligible. Additional evidence has been presented supporting the thesis that parenteral protein requires adequate caloric intake for optimal utilization of amino acids. The pH of the tested solution is 5.55 and, although quite acid, it did not cause undue reaction in the tissues when infiltrated out of the ordinary intravenous needle. When introduced in the described way by a polyethylene catheter in an arm vein, the only reaction noted was from the polyethylene tube itself. If the tube was changed to another vein at the earliest sign of phlebitis, then only a very minor reaction was caused. Slow, continuous, around-the-clock infusion through plastic venous catheter afforded best utilization of all constituents of parenteral alimentation. An illustrative case is described of proper and complete parenteral administration in a 40-year-old woman who had a Whipple resection for carcinoma of the ampulla of Vater and was given a continuous infusion of the authors' solution for the first five postoperative days. All nutritional factors studied, including potassium, sodium, nitrogen, caloric percentage and water, showed a nearly perfect balance and her clinical course described by the fever chart and the ability to resume complete oral food intake by the sixth postoperative day indicated rapid surgical recovery.

New England Journal of Medicine, Boston

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Effect of Aureomycin and Chloramphenicol on Fungal and Bacterial Flora.—Undesirable side-effects resulting from treatment with chloramphenicol and aureomycin include glossitis, stomatitis, sore throat, proctitis, pruritus vulvae and ani, nausea, vomiting, diarrhea, bronchomoniliasis, mycotic endocarditis and meningitis, and the sprue syndrome. It has been suggested that these effects are a result of increased growth of *Candida albicans*. McGovern and associates decided to determine the incidence of *C. albicans* in the gastrointestinal tract of normal children, and to observe the clinical, bacteriological and mycologic alterations that occur in children after administration of antibiotics. Studies on 100 healthy children disclosed that *C. albicans* could be demonstrated in small numbers in the mouths of 14% of the children and in the rectum in 6%. The incidence of *C. albicans* in the gastrointestinal tract of 45 children to be treated with antibiotics was 17%,

this rose to 33% at the end of the treatment period. Twenty-one of these children were given aureomycin orally for eight days, and 24 were given chloramphenicol intramuscularly or orally for 10 to 14 days. By the third to the eighth day of treatment, the average number of colonies of *C. albicans* had increased from 3 to 50. There was a marked decrease in gram-negative and gram-positive organisms in the gastrointestinal tract, with a concomitant increase in the fungal floras, including yeasts and various species of *Candida* organisms other than *C. albicans*. Although *C. albicans* was apparently induced to grow in 17% of the 45 patients observed, clinical thrush did not appear in any patient, however, the authors noted clinical thrush in 4 unreported cases in which the broad-spectrum antibiotics were given either in larger doses than those used in this study or in the same dose for longer periods. It seems that the duration of treatment, the dosage, and the presence or absence of *C. albicans* before treatment are important in determining whether thrush or other forms of moniliasis will develop during therapy with broad-spectrum antibiotics. The danger of moniliasis in children from the use of these drugs in therapeutic doses does not seem great when the drug is administered for not more than eight days.

New Jersey Medical Society Journal, Trenton

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 *Symptoms Suggesting Prodromal Stage of Diabetes Mellitus O P Allen—p 213
 Ohio Tuberculosis Hospital First Year's Operation R. H. Browning—p 216
 Hereditary Spherocytic Anemia in Negro Family H. J. Caes J H Meyer M Block and R M Kahn—p 221

Prodromal Stage of Diabetes Mellitus.—In an attempt to explain the presence of obesity before the onset of diabetes mellitus and the weight loss that commonly follows the onset of diabetes, Allen studied the early history of diabetic patients. He found that a family history of diabetes need not always be present, but both the gain and the loss of weight are usually preceded by some severe infection or a long continued toxic state that causes an imbalance in metabolic processes. The initiating toxemia is followed by excessive gain in weight, because excessive appetite, piecing between meals, at bedtime or on waking during the night, relieves the patient of several of the following symptoms: hunger, weakness, nervousness or irritability, trembling and/or fluttering in the epigastrium, sweating, night sweats, restlessness at night, and a dull, weak feeling or headache in the morning before breakfast. These symptoms, which suggest hypoglycemia due to excess of insulin, may have existed for many years, when another infectious or toxic period is followed by loss of weight, polyphagia, polydipsia, and polyuria. With some of these conditions in mind, 252 cases were reviewed in 1943 and the above symptom complex was found in 24% of the patients. With broader experience the percentage rose to 33.5% in the next group of 298 patients, and to 76.1% in the last group of 657 patients questioned in the diabetic clinics at which the author is a consultant, for the total of 1,207 cases this amounts to 54.77%. The author reasons that due to stress and/or toxic states, the organism first produces an excess of insulin and hypoglycemia results, which causes exhaustion of beta cells of the pancreas. In this overworked state, these cells are easily damaged by a second or repeated toxic state and they become permanently damaged so that the production of insulin is far below the normal demand, and the organism loses its ability to metabolize glucose. The blood sugar rises above normal levels and the result is diabetes mellitus.

Proc Soc Exper Biol & Med, Utica, N Y

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 In Vitro Effects of Cortisone on Multiplication of Influenza B Virus E D Kilbourne and I Tateo—p 274
 *Further Studies on Oral Administration of Living Poliomyelitis Virus to Human Subjects H Koprowski G A Jervis T W Norton and D J Nelsen—p 277
 Treatment of Nephrotic Syndrome with Interrupted ACTH or Oral Cortisone Therapy K. Lange L. Slobody and R. Strang—p 315

Oral Administration of Living Poliomyelitis Virus to Human Subjects.—In a previous report Koprowski and associates had described the results of oral administration of the TN strain of rodent-adapted living poliomyelitis virus to 20 human volunteers. None of the subjects showed untoward effects from the administration of the virus. In this paper they present the results of oral administration of the same type of virus to 61 human subjects, all of whom had no Lansing antibodies prior to the experiment. None of these patients showed clinical signs of illness, and no viremia was found. Although the could be demonstrated in the stools of 29 out of 61 the antibody response indicates that infection was

established in many, more cases, since the serums of only 6 patients had no neutralizing antibodies on the 30th day after ingestion of virus. One may assume that in five of these six patients the virus was destroyed before reaching the intestinal tract, since no virus was isolated from their stool specimens. There was either insignificant or no rise in antibody response in three other patients whose blood did show some neutralizing power when drawn prior to feeding with virus. However, the authors suggest that the level of antibodies observed in the latter three patients should be considered high enough to prevent paralysis after a peripheral exposure to virulent Lansing type virus. Perhaps another oral administration of the TN strain to the nine patients would result in multiplication of the virus in the intestinal tract and subsequent adequate serological response.

Psychiatry, Washington, D C

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 Multiple Therapy in Treatment Program of Mental Hospital J E Dyrud and M J Rloch—p 21
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Psychoanalytic Quarterly, Albany, N Y

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 Recent Progress in Cancer Research J R Heller Jr—p 309
 *Mechanical Air Drying of Hands Following Preoperative Scrubbing P E Walker—p 317
 Histoplasmin and Tuberculin Sensitivity in Texas Infants and Children G B Forbes and C C Chang—p 320
 Public Health in the Western States W L Halverson—p 323
 Health Conservation Activities of TVA O M Derryberry—p 327
 Capillary Tube Technique for Serologic Screening of Syphilis C R Freebie Jr and B Orsburn—p 341

Mechanical Air Drying of Hands After Preoperative Scrubbing.—It seemed that simple air-drying of the hands would eliminate some probabilities of contamination involved in the use of sterile towels for drying, such as improper rotation of the towel during drying or the touching of the scrub suit or of the unscrubbed portions of the upper extremities. Before accepting the air dryer, however, it had to be determined whether or not the forcing of warm air over the extremities would increase contamination, and whether or not it would be practical. Bacteriological studies of 304 cultures, taken from groups of surgical personnel after use of a standard scrub technique, showed a probably significant reduction of gross contamination of the hands when a mechanical air dryer was used. Furthermore, the mechanical air-drying technique is less expensive than the towel-drying technique.

Review of Gastroenterology, New York

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- Several Problems in Benign Biliary Tract Surgery H F Newman—p 155
 Complete Situs Visceris Inversus Associated with Cholelithiasis and Complicated by Carcinoma of Gallbladder P J Shank and R P Stafford—p 167
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 General Adaptation Syndrome (G A S) and Gastroenterology H Selye—p 185
 Incidence of Coexistence of Gastric Ulcer in Esophageal Hiatus Hernia of Stomach M Feldman and P Myers—p 191

Surgery, Gynecology and Obstetrics, Chicago

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- Treatment of Chronic Hematogenous Osteomyelitis by Means of Saucerization and Bone Grafting W H Bickel J G Bateman and W E Johnson—p 265
- Cancer of the Stomach H K Ransom—p 275
- Combined Surgery and Irradiation in Treatment of Cancer of Cervical Stump H A Young and A F Jonas—p 288
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- Experimental Intrapleural Substitution of Right Colon for Resected Esophagus W Fry—p 315
- Movement of Potassium During Experimental Acidosis and Alkalosis in Nephrectomized Dog R. E. Keating T E Weichselbaum M Alanis and others—p 323
- Histologic Grading of Cancer of Uterine Cervix J B Graham—p 331
- Value of Tracheotomy in Acutely Ill Surgical Patients E M. Colvin and W M Morrison—p 338
- Recurrent Hernias Analysis of 369 Consecutive Cases of Recurrent Inguinal and Femoral Hernias E. A. Ryan—p 343
- Inflammatory Fibroid Polyps of the Stomach E B Helwig and A Ranier—p 355
- Influence of Location on Prognosis in Operable Rectal Cancer M W Stearns Jr and G E Binkley—p 368

Saucerization and Bone Grafting in Chronic Hematogenous Osteomyelitis.—In general, surgical eradication of the infection in the localized posttraumatic form of chronic osteomyelitis is not so difficult as the eradication of an area of chronic hematogenous osteomyelitis. Thirty six patients with chronic hematogenous osteomyelitis were treated by bone grafting at the Mayo Clinic prior to January, 1951. All except nine of the patients had had previous drainage treatment, either continuous or intermittent. The osteomyelitis had persisted for from one to 50 years. In those in whom the disease had persisted for more than 20 years, the treatment failed in 5 of 14 cases. Treatment was successful in a total of 28 of the 36 cases. The tibia (19) and the femur (14) were the most frequent sites of involvement. The types of surgical procedures used and the results obtained were saucerization and immediate bone grafting in 19 cases, with 15 successes and 4 failures, saucerization, packing, and later bone grafting in 16 cases, with success in 12 and failure in 4, saucerization and packing followed by skin grafting with bone grafting later in one successful case. Results according to the type of graft used were autogenous iliac in 11 cases with 10 successes, homogenous (frozen bank) in 20 cases with 15 successes, autogenous and homogenous in 5 cases with 3 successes. Of eight failures, five occurred when homogenous bone alone was used, two when homogenous bone was used to supplement autogenous iliac bone, and only one failure occurred when autogenous iliac bone was used alone. The only failure when autogenous iliac bone was used, was in a case in which grafting was done two weeks after saucerization, and in which inability to control infection with antibiotics led to removal of the grafts. A light cast or posterior molded splint was used in a few of the cases, but immobilization was not considered necessary in those cases in which motion of the extremity did not jeopardize continuity of the closure and in which there was no danger of spontaneous fracture as a result of extensive saucerization. It seems well to keep a drain in the wound until the primary hematoma has been evacuated, since some patients had a postoperative serosanguineous drainage. In most patients (23), complete healing resulted in two to three weeks. Thus it appears that more rapid and more nearly permanent healing may be obtained by this than by other methods of treatment.

Histological Grading of Cancer of Uterine Cervix.—Graham surveys and evaluates the various methods of histological grading of cervical carcinoma. Schottlander and Kermauer in 1912 suggested the system that has since become standard in

many European countries. The tumors are first divided into adenomatous and solid types. The solid carcinomas are graded as mature, semimature, and immature. Broders of the Mayo Clinic in 1920 and 1922 developed a method that divides the tumor into differentiated and undifferentiated parts, and then, according to the relative amount of the two types, it is assigned to one of four grades. This method is the one most frequently used in North America. Other methods of histological grading have been introduced by Martzloff, by Chambers, by Truelsen and Bang, and by Glucksmann and Spear. All these methods of histological grading are based on the degree of anaplasia versus differentiation. The technique is partially subjective and limited by the biopsy specimen, which may or may not be a good sample of the tumor. The degree of anaplasia correlates poorly with the clinical extent of disease when the patient is first seen but somewhat better with the incidence of metastases in postmortem material. Radiotherapy results in a moderately higher "cure" rate in differentiated tumors than in anaplastic ones. Some results of surgically treated highly anaplastic tumors are poor. It is concluded that histological grading is of limited prognostic value in cancer of the cervix.

U S Armed Forces Med J, Washington, D C.4 311-466 (March) 1953 **Partial Index**

- Epidemiology of Infectious Hepatitis W R Warren—p 313
- Brucellosis Advances in Therapy W M Simpson—p 337
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- Use of Melamine Formaldehyde in Application of Casts A W Spittler J J Brennan and J W Payne—p 373
- Röntgenographic Visualization of Spleen P Zanca—p 383
- Clinical Examination of Acute Traumatic Facial Injuries J B Caldwell—p 387
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- Evaluation of Physical Fitness of Present Day Inductees B D Karplins—p 415
- Hypertrophy of Heart of Unknown Cause J B Selby and L. H. Thomas—p 435
- Calcified Costal Cartilage K A Youngstrom—p 455

Virginia Medical Monthly, Richmond

80 127-188 (March) 1953

- Don't Do This for Asthma O Swineford Jr—p 129
- Treatment of Groin Hernias C. Williams Jr—p 135
- Benign Gynecologic Bleeding J P Hennessy—p 138
- Certain Reparative Surgical Procedures of Upper Respiratory Tract G S Filtz Hugh F D Woodward and C N Moon Jr—p 143
- Aspirin Poisoning E Gardner—p 147
- Hyperactive Carotid Sinus J B Twyman—p 152
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- Spontaneous Hemopneumothorax Occurring in Female J Freund and H. R. Hicks—p 162
- Trichinosis Case Report R. B. Gahagan and J R Beckwith—p 165
- Effects of Insulin Hypoglycemia on Diabetic Heart W R Chitwood—p 168

Poisoning with Acetylsalicylic Acid.—An 18 month old boy swallowed 15 to 20 1¼ grain (75 mg) tablets of acetyl salicylic acid (aspirin), a total of 20 to 25 grains (1.3 to 1.6 gm). He had seemed all right after this, had had a normal day, had taken his usual meals and had gone to bed in good condition. Eighteen hours after ingestion, at 3:30 a.m. the nurse noticed the child breathing rapidly in a deep, pauseless manner. He looked pale and lethargic but could be roused. He was taken to the hospital at once, but all measures were without effect and he died nine hours after admission. The results of necropsy are described, and the literature on the subject is reviewed. Infants and children seem peculiarly susceptible to relatively small amounts of acetylsalicylic acid (aspirin). Unexplained hyperpnea in infants and children should suggest salicylate intoxication. Salicylate is always found in the blood and urine to confirm a diagnosis of poisoning with acetylsalicylic acid. Hydration and correction of acidosis are the two most important factors in treatment of the acidotic stage. Acetyl salicylic acid has a cumulative effect when given over a period of time. A safe dosage for children is 1 grain (65 mg) per year of age. In accidental ingestion of an unknown amount gastric lavage is advocated.

FOREIGN

Arztliche Wochenschrift, Berlin

8 217-240 (March 6) 1953 Partial Index

- Late Pregnancy Toxemias and Maternal Mortality in Obstetrics H Jacobi —p 217
- Infectious Mononucleosis as a Pantotropic Virus Infection B Knick and K Hoffmann —p 219
- *Penicillin and Streptomycin in Therapy of Diphtheria R Schneider —p 223
- Blood Pressure Reducing Effect of Vitamin K in Hypertension K D Klein —p 226

Penicillin-Streptomycin Therapy of Diphtheria.—Schneider used a preparation containing penicillin and dihydrostreptomycin in the treatment of diphtheria. His aim was to find whether and to what extent penicillin plus streptomycin was superior to penicillin alone. He found that in cases of diphtheria of moderate severity the effect of penicillin in combination with diphtheria antitoxin is so excellent that further improvement in therapeutic efficacy is not to be expected. However, in the presence of severe toxicity and of septic conditions and particularly in patients who do not receive clinical treatment until quite late in the course of the diphtheria (at the end of the first or at the beginning of the second week), the administration of penicillin and streptomycin in combination is of value. This is evidenced by the more rapid decrease of the temperature and demarcation and detachment of the coating membranes. The circulation, which has been damaged by the toxins, becomes normal within a few days, without support by circulatory stimulants. There is rapid improvement in the feeling of well-being, and the defense powers of the organism increase. Finally there is a saving of penicillin and serum. Moreover, probably as a result of the more rapid elimination of the pathogenic organisms, and thus cessation of toxin production, toxic nerve damage can be avoided. The combination of streptomycin and penicillin is also effective in treating chronic bacilli carriers. Because of these advantages, the combination of penicillin and streptomycin can be regarded as a definite improvement in the therapeutic armamentarium against diphtheria. The practical application of his observations the author formulates as follows. In the mild cases of diphtheria he uses only diphtheria antitoxin. In the moderately severe cases he gives penicillin in addition to the antitoxin. In the toxic and septic cases, and in those in which treatment is begun late, he uses penicillin and streptomycin in addition to serum therapy. The combination of penicillin and streptomycin should be used also to render free from bacilli those patients who continue to excrete diphtheria bacilli, particularly the chronic carriers.

Die Medizinische, Stuttgart

No 11 337-368 (March 14) 1953 Partial Index

- *Present and Future Clinical Management of Renal Tuberculosis E Rehn. —p 337
- *Treatment of Tuberculous Meningitis H Fedtke and G Müller —p 343
- Significance of Spontaneous Pneumoperitoneum in Silent Perforation of Stomach F Best —p 346
- Treatment of Congenital Syphilis E Landes. —p 349

Clinical Management of Renal Tuberculosis.—Within the last 20 years nephrectomies were performed in Freiburg, Germany, on 310 patients with surgical tuberculosis of the kidneys. Post-operative deaths occurred in 33 of the 310 patients, a very high mortality rate as compared to that of gastrectomy (4 to 5%) for ulcer and carcinomatous ulcer. Of the 33 deaths, 4 resulted from embolism and 2 from late collapse. Of the remaining 27 deaths, 10 resulted from hematogenous spread of the tuberculosis, 8 from reactivation of organic tuberculosis, and 7 from failure of the second kidney due to toxic nephritis and resulting activation of tuberculosis. The common post-operative complications thus were of little significance as compared to the sequelae of the general tuberculous disease. According to the author, this may be explained by hormonal phenomena. Any stress such as operative trauma or the dissemination of toxins from a tuberculous focus increases the secretion of glucocorticoids such as cortisone from the adrenal cortex. Cortisone then favors growth and dissemination of bacilli by the prevention of cellular defense reactions. Thus new tuberculous foci may occur in the second and as yet

healthy kidney. These may remain localized and latent as long as the antitoxic effect of the cortisone is still present, since, as Tonutti has shown, in guinea pigs, after the hypophysis has been removed, the small doses of cortisone can neutralize lethal doses of tuberculous toxins. The author, therefore, agrees with Tonutti that in tuberculous patients the unimpaired function of the adrenal cortex is of greatest importance for the course and prognosis of toxic dissemination. The tuberculous nephritis is to be considered an indicator of an approaching deterioration of the state of immunity due to the exhausted or impaired adrenal cortex because of the overload placed by the tuberculous toxins on its reaction capacity. The rules that according to Tonutti govern the relationship between diphtheria toxin and the diencephalon-pituitary-adrenal cortex system also apply to that of the tuberculous toxin and the same organ complex. Any surgical treatment of renal tuberculosis depends on the knowledge of this specific operative risk. Its early recognition is facilitated by the diagnosis of the toxic nephritis with the aid of the acid-alkali tolerance test in its classic form. The same test may also be used to determine the right time for the surgical intervention. The operative risk can be lessened by the administration of amithiozone (Conteben). Its detoxicating property is somewhat similar to the antitoxic effect of cortisone, but while cortisone removes the adrenal cortical deficiency and as a direct substitute increases the toxic effect, amithiozone neutralizes the tuberculous toxin and protects the diencephalon-pituitary-adrenal cortex system. Although amithiozone may cure the tuberculous nephritis and may increase the tolerance of the patient to the operation, surgical intervention is indispensable. In one patient with a tuberculous cavity in the left kidney and a toxic nephritis in the right kidney, the author gave a three months course of amithiozone and p-aminosalicylic acid, and then instead of performing partial resection of the left kidney, he collapsed it with several through and through quilting sutures. Complete cure of the tuberculosis was obtained as demonstrated by pyelography. In the future collapse therapy combined with chemotherapy may be used likewise for unilateral renal tuberculosis.

Treatment of Tuberculous Meningitis.—Of 10 patients with tuberculous meningitis, 3 were given a therapeutic trial with streptomycin combined with isoniazid. Streptomycin was given intramuscularly in doses of 30 to 40 mg per kilogram of body weight but not exceeding 15 gm daily in two divided doses, and in addition intrathecally in doses of 25 to 50 mg daily depending on the age of the patient. Beginning with the fifth week of treatment, streptomycin was given intrathecally only every second day and from the ninth week onward only twice a week. Beginning with the fourth month of treatment, streptomycin was given intramuscularly only every second day instead of daily. Isoniazid was given orally in daily doses of 5 to 8 mg per kilogram of body weight. Six patients were given streptomycin intramuscularly and intrathecally and purified tuberculin intrathecally starting with 0.01 to 0.5 tuberculin unit according to the severity of the reaction to the Mantoux test and increasing this dose by 50 to 100% with each subsequent injection. The maximum dose so far used consisted of 14 intrathecal injections of purified tuberculin with a maximum single dose of 5 units. Although follow up has been too short for final evaluation, the authors feel justified in stating that early treatment with intramuscular and intrathecal injections of streptomycin combined with orally administered isoniazid is at present the most promising method of treatment of tuberculous meningitis. Prospects are good for obtaining a cure of the specific meningitic process even in patients of advanced age and in those with other tuberculous manifestations, such as pulmonary tuberculosis and milary dissemination. Additional treatment with intrathecal injections of purified tuberculin may have a favorable effect in patients with a torpid course threatened with the development of internal hydrocephalus resulting from obstruction of the foramina of the ventricular system at the base of the brain or with spinal block. It seems that this method favors the regression of specific foci in the meninges and the central nervous system as well as the absorption of the fibrinous deposits at the base of the brain and in the spinal canal. Thus irreversible cicatricial stenoses and adhesions may be prevented. In the authors' last patient, an 11-year-old girl with internal hydrocephalus due to circa-

trical stenosis, continuous drainage of the ventricular system at the base of the brain was attempted with a polyvinyl catheter passed from the inferior horn of the lateral ventricle to the cell system of the mastoid process. Pronounced improvement for several weeks resulted from this artificial drainage that functioned despite the severe lesions. However, death from chronic tuberculous meningitis with extensive adhesions at the base of the brain, specific endarteritis, and internal hydrocephalus could not be prevented because of delayed institution of treatment. The authors consider this method as promising.

Geburtshilfe und Frauenheilkunde, Stuttgart

13-97-192 (Feb) 1953 Partial Index

- Connection Between Position of Uterine Cervix and Prolonged Pregnancy
K. Burger—p 97
Prophylaxis and Therapy of Thromboembolism A. W. Schwenzer—p 100
Causes of Onset of Labor W. Cyran—p 114
Technique of Peridural Anesthesia H. Dahn—p 118
*Transmission of Penicillin Through Human Placenta T. Raspe—p 124
Transfer of Penicillin into the Amniotic Fluid: A Contribution to the
Question of Fetal Kidney Function H. Fritzen and E. Meuren—p 130
Cause of Placenta Praevia C. Laforet—p 150
Failures in Pregnancy Tests with Frogs G. Schaible and E. Schlären
—p 158

Transmission of Penicillin Through Human Placenta—Thirty parturient women were given intramuscular injections of 400,000 units of penicillin immediately after having entered the delivery room, and during delivery, blood was obtained from the arm vein of the mother and from the umbilical cord. The penicillin content of the serums was compared. The ratio between the serum content in the infant and in the mother increased up to three and one half hours after the injection, at which time the penicillin content of the serum of the infant was equivalent to 60% of the penicillin content of the maternal serum. It is assumed that the penicillin passes through the placenta according to the laws of diffusion, the rapidity of transmission seems to depend on the size of the placenta. Soon after the injection of penicillin into the mother, the penicillin is excreted through the kidneys of the infant and soon appears in the amniotic fluid, its concentration in the amniotic fluid being higher than in the serum of the infant. The authors emphasize that it is not correct to speak of the penicillin content of the blood, because the penicillin content is ascertained in the serum, and the penicillin content of the cellular portion of the blood is only a fraction of that of the serum. In the newborn, serum accounts for 40% of the blood and in adults for 56%.

Lancet, London

1 451-502 (March 7) 1953

- Interrelation of Trauma and Cervical Spondylosis in Compression of
Cervical Cord C. Symonds—p 451
Pharmacology of M & B 2050 R. Wlen and D. F. J. Mason—p 454
New Sympatholytic Agents R. D. H. Maxwell and A. J. M. Campbell
—p 455
*Action of New Methonium Compound in Arterial Hypertension Penta-
methylen 1,5-bis-N-(N-Methylpyrrolidinium) Bitartrate (M. & B.
2050A) F. H. Smirk—p 457
Compressed Air Illness on Tyneside R. I. McCallum and D. N. Walder
—p 464
Tilting Table Top for Abdomino-Thoracic Approach to Stomach and
Oesophagus J. C. Goligher—p 467
Normal Values for Blood Constituents: Inter-Hospital Differences I. D.
P. Wootton and E. J. King—p 470
Rat Bite Fever: Report of Case Due to *Actinomyces muris* A. P. Water-
son and J. Wedgwood—p 472.

New Methonium Compound in Arterial Hypertension—Smirk tested the effects of a new methonium compound, pentamethylene 1,5-bis-N-(N-methylpyrrolidinium) bitartrate, also referred to as M & B 2050A, in patients with hypertension. The drug was administered by subcutaneous injection and by mouth. Initial subcutaneously administered doses of the drug were about five times as active as initial doses of hexamethonium bromide, and the fall in blood pressure lasted longer. The new drug seems to control the blood pressure without toxic manifestations in a majority of hypertensive patients. In a few patients doses adequate to produce hypotension cause extreme mouth

dryness. The new drug should prove superior for oral administration to hexamethonium bromide, pentamethonium bromide, and some other hypotensive drugs, provided that additional side-effects do not appear with continued treatment. In four months of continued administration, toleration and cross toleration did not develop to the same extent as with the earlier methonium and some other hypotensive compounds. The oral dose of the new methonium compound is much greater than the effective subcutaneous dose but much smaller than the oral dose of hexamethonium salts. The comparative lack of side-effects during oral administration of the new drug may be related to the fact that the patients who gave the best responses to oral hexamethonium salts were usually those who required only small doses. Like hexamethonium bromide, the new methonium compound gives rise to postural hypotension in the erect posture and leads to an additional fall of blood pressure after meals. The pulse rate is ordinarily accelerated or little changed. Papilledema, soft retinal exudates and hemorrhages, breathlessness, and headaches have diminished sooner on treatment with the new drug than during treatment with hexamethonium salts. Preliminary studies justify extensive therapeutic trials with the oral administration of the new drug, but the mode of administration differs from that found suitable for hexamethonium bromide. In cases in which secondary effects prevent continued oral administration, the new drug should be dissolved in 25% polyvinyl pyrrolidone, to which 1 in 1,000 ephedrine hydrochloride is added to slow the absorption further. This preparation is injected twice daily with an interval of 10 to 12 hours between the injections.

Nederlandsch Tijdschrift v Geneeskunde, Amsterdam

97 325-388 (Feb 7) 1953 Partial Index

- *Meperidine (Pethidine) for Prophylaxis of Cough During Intratracheal
Anesthesia J. P. Buschkens—p 331
Complications Following BCG Vaccination in Newborn and the Strain of
BCG A. C. Brandwijk and R. Gispén—p 336
The Two-Step Test of Master J. T. C. Vonk Jr—p 338

Meperidine for Prevention of Coughing During Intratracheal Anesthesia—The presence of a rubber tube in the trachea during anesthesia increases the likelihood that the patient will cough. Other factors that predispose to cough include the increased sensitivity of the tracheal mucosa as the result of tracheitis in smokers and the augmentation of laryngeal irritability induced by pentothal. The synthetic analgesic, meperidine (Pethidine or Demerol) has a spasmolytic effect on the smooth muscles of the bronchial tree, and so Buschkens began a clinical study on its cough preventing effect. Alternate patients of a total of 44, who were anesthetized with thiopental (Pentothal), nitrous oxide, and oxygen and supplemental tri-chloroethylene, were given 5% meperidine hydrochloride in an average dose of 38.9 mg during the first half hour and a mean total dose of 65.7 mg. Coughing was significantly reduced in the 22 patients who had received meperidine. Buschkens believes that the use of meperidine should be considered in patients in whom coughing persists during anesthesia and in whom surface anesthesia fails and ether is contraindicated.

New Zealand Medical Journal, Wellington

52 1-68 (Feb) 1953 Partial Index

- Influenza Virus and the Disease L. B. Fastier—p 4
Leptospirosis in New Zealand: Report of Case of Canicola Fever G. A.
West and V. I. E. Whitehead—p 8
Cardiac Resuscitation in the Operating Theatre S. C. Peddie and W. D.
Meldrum—p 14
Maternal Rubella and Congenital Deafness in New Zealand D. R. Hay
—p 16
Present State of Surgery in Treatment of Pulmonary Tuberculosis
J. Borrie—p 20
*Retrolental Fibroplasia: Report of Case N. C. Begg and R. P. Wilson.
—p 30
Fatal Case of Erythema Nodosum and Acute Rheumatism Tuberculoïd
Histology in Lymph Glands H. C. W. Stringer—p 35

Retrolental Fibroplasia—Begg and Wilson briefly outline the history of retrolental fibroplasia and say that it is essentially a disease of the very small premature baby, being most frequently found in babies whose birth weight is under 3 lb (1,360 gm). They also call attention to its widely varying

incidence in different clinics and to its great frequency in centers which had modern equipment and gave very special care to these tiny premature infants. Many theories have been advanced to explain the cause, but each in turn has had to be discarded. On the other hand, recent work by Szweczyk of East Saint Louis and Ryan in Melbourne has shown that continuous prolonged oxygen therapy instituted early at high concentrations has proved a potent factor in the causation of the disease. The baby described here had been given far more oxygen than is usually administered at the service for premature infants at the hospital with which the authors are connected. All the features of established retrolental fibroplasia were present. Factors possibly predisposing to the development of the condition were the degree of prematurity and the duration and saturation of the oxygen therapy (though withdrawal was gradual). Complicating factors that may have played some part in the causation are the anemic state of the mother, the persistently low temperature of the baby during the first three weeks of life, the severe skin infection, and penicillin therapy. The outlook for the child's life is good but for her vision it is bad. She seems physically well and has no obvious congenital defect. She has developed well from the point of view of her intelligence and is emotionally quite normal. Unfortunately, by the time the diagnosis was made, the disease had reached an irreversible stage. Oxygen therapy, which is often life saving in the first 48 hours, should be given only to those premature infants who need it. If prolonged oxygen therapy is necessary, the eyes of the infant should be examined weekly by an ophthalmologist, especially during withdrawal of oxygen. He should guide the pediatrician regarding returning the baby to oxygen if eye changes have already taken place. The withdrawal must be gradual. The eyes of all babies whose birth weight is under 4 lb (1,814 gm) and who do not require oxygen should be examined by an ophthalmologist at least fortnightly until the end of the second month of life and again at the sixth month.

Presse Médicale, Paris

61 207-226 (Feb 18) 1953 Partial Index

- *Potassium in Anuric Tubular Nephropathy M. Dérot, P. Pignard, R. L. Touraine and J. Bernard—p 207
- Epigastric Cramps Elicited by Effort in Patients with Gastroduodenal Ulcers Intermittent Claudication of Stomach P. Frumusan—p 209
- Basal Temperature in Women Important Diagnostic Factor E. Hurter—p 210

Potassium in Anuric Tubular Nephropathy.—The potassium content of the blood and urine of 13 women with anuric tubular nephropathy (due to septicemia after abortion in 12 and to apol poisoning in 1) was determined with an electrometer every second day. In seven additional patients with anuric nephropathy after abortion and in one with anuria after blood transfusion, potassium determinations in the blood and in the urine were made by chemical methods at more irregular intervals. All the patients were placed on a diet rich in carbohydrates (about 1,200 calories). Rehydration and rechlorination were based on daily laboratory determination. Catabolic control was exerted by administration of androgens. Exchange transfusions during the hemolytic phase or peritoneal dialysis with a standard solution free of potassium and magnesium were employed as extrarenal purification methods. In the initial period of anuria, before the institution of extrarenal purification, the potassium level remained within normal values (17 to 23 mg per 100 cc [4.3 to 5.8 mEq per liter]), while the nitrogenous products in the blood were increased. This phase was short, lasting three days on the average. In the phase of pure anuria the plasma potassium level increased roughly in proportion to the increase in azotemia. In 16 of the 21 patients, this increase occurred most frequently about the 18th day, varying from 23 to 45 mg per 100 cc (5.8 to 11.5 mEq per liter). This hyperpotassemia should be considered as a sign of cellular impairment. During the initial phase of reestablishment of urinary flow, the blood potassium level became stabilized, but within two or three days a very rapid drop in the potassium content of the blood was observed in 11 of

the 13 patients in whom determinations were performed regularly, a level below 15 mg per 100 cc (3.8 mEq per liter) resulted in 8 of the 13 patients. Hypopotassemia occurred in four patients who had not been subjected to extrarenal purification procedures. Hypopotassemia persisted during the convalescence period and restoration to normal was very slow. Hyperpotassemia occurring in patients with anuric tubular nephropathy is often a grave factor, when it exceeds 35 mg per 100 cc and particularly when it is associated with cardiovascular signs. It is one of the major indications for extrarenal purification, particularly for peritoneal dialysis. It requires regular determinations of the blood potassium level and careful observation of electrocardiographic changes. Hypopotassemia occurring at the time that diuresis is resumed raises difficult therapeutic problems. The patient should be placed rapidly on a diet containing less carbohydrates and more mineral elements rich in potassium. It seems that a rational alimentation is the only means of preventing postanuric hypopotassemia. Determinations of blood potassium levels in patients with anuric tubular nephropathies seem to be indispensable for the detection of those states of hyper- and hypopotassemia which act as aggravating factors in the course of these disorders.

61 227-248 (Feb 21) 1953 Partial Index

- *Obstetrical Future of Hypertensive Women Subjected to Dorsolumbar Sympathectomy P. Milliez and D. Fritel—p 227
- Systemic Affections and Oropharyngeal Anaerobic Allergy Gambillard J. Lehmann and Sourice—p 229
- Dermatomycoses and Occupational Eczemas W. Lindenmayr—p 231

Obstetrical Future of Hypertensive Women Subjected to Sympathectomy.—Lumbodorsal sympathectomy will enable many women with permanent arterial hypertension to under take or to continue pregnancy with safety. The procedure should be carried out before pregnancy if possible and should be advised only when a well-controlled hypertensive patient with a history of unsuccessful pregnancy insistently desires to have a child. The patient, who must be closely followed, should be placed on a strict salt free diet from the beginning, a satisfactory hormone balance should be maintained by the administration of progesterone or synthetic estrogens, and the blood pressure should be taken regularly so that bed rest can be instituted at the least sign of danger. Cesarean delivery shortly before normal term may be advised and will spare both mother and child the risks accompanying the last days of pregnancy and the severe ordeal of labor. The relief afforded by sympathectomy is temporary and the ultimate fate of the patient is uncertain; many women, however, can support high levels of hypertension for years. Sympathectomy may also be performed when necessary during pregnancy, but should not be undertaken unless the patient shows signs of severe vascular damage.

61 249-284 (Feb 25) 1953 Partial Index

- *Prolonged Action of New Nontoxic Antibiotic in Treatment of Leprosy A. Tzanck, A. Bassett and L. Salomon—p 249
- Giant-Cell Mesothelioma in Flat Band Development. A. Rywlin and H. Kuschner—p 250
- Tay-Sachs Amaurotic Idiocy R. Clément, J. Gruner, P. Ramelx and J. Bretagne—p 253
- Effect on Clotting Time in Newborn of Intraumbilical Injection of Vitamin K and of Ingestion of Plasma Thrombin H. Pigeaud, R. Bené and S. Barbaud—p 256
- Treatment of Fractures of Base of First Metacarpal Bone G. Menegaux and P. Dédie—p 257

New Nontoxic Antibiotic in Treatment of Leprosy.—Tests of a new diazotized argentic sulfone (D₁ Atox argenticque Jeanson) in 15 patients with leprosy (Hansen's disease) proved its lack of toxicity and harmlessness to the hematopoietic centers. It does not produce either drug resistance or habituation on the part of the bacilli, and may therefore be administered as long as necessary. Most lesions responded rapidly to treatment, but some, which were poorly vascularized and sclerotic, did not begin to regress until the end of the second year. Continued treatment finally resulted in their complete disappearance. Adults may be given a dose of 0.20 gm a day (taken orally) to begin with, as the disease regresses, the dose may be reduced. Continuance of the treatment for two or three years after clinical cure was obtained prevented relapses.

Quarterly Journal of Medicine, Oxford

22 1-120 (Jan) 1953

- Nephrectomy and Other Treatment for Hypertension in Pyelonephritis
G W Pickering and R H Heptinstall—p 1
- Chronic Brucellosis G M Barrett and A G Richards—p 23
- *The Heart in Chronic Pulmonary Disease R M Fulton—p 43
- Symptoms Signs and Diagnostic Features of Idiopathic Steatorrhea.
W T Cooke A L P Peeney and C F Hawkins—p 59
- Atypical Congenital Haemolytic Anaemia. J V Dacie P L Mollison
N Richardson and others.—p 79
- Urinary Excretion of Radioiodine as Clinical Test of Thyroid Function
R Fraser Q J G Hobson D G Arnott and E W Emery—p 99

The Heart in Chronic Pulmonary Disease—In 1950 and 1951 Fulton made the diagnosis of heart disease resulting from pulmonary disease in 129 patients during life. The diagnosis was based on clinical evidence, and did not entail demonstrable right ventricular hypertrophy. Seventy three patients died, and necropsy was performed on 58. The present account is confined to 50 pathologically verified cases. The pathological criteria for the diagnosis of chronic pulmonary disease with cardiac involvement were (1) bilateral chronic pulmonary disease, (2) absence of congenital, valvular, and ischemic heart disease, and (3) the presence of right and the absence of left ventricular hypertrophy. In the terminal stage two main groups of cases were recognized (1) congestive, in which right ventricular hypertrophy was considerable and death was due to congestive heart failure, and (2) anoxic, with slight right ventricular hypertrophy, little congestive failure and death from cerebral anoxia. Although right ventricular hypertrophy was less pronounced in the anoxic group, the amount of lung destruction was greater. It is suggested that this difference may be explained by a more rapid rate of progression of the lung disease in the anoxic group. About one fourth of the patients died from acute respiratory infection or other causes before differentiation into the congestive or anoxic pattern had taken place. "Chronic cor pulmonale" seems an unsatisfactory name because only one half of the patients with fatal uncomplicated chronic pulmonary disease died from congestive heart failure. The other half died from acute respiratory infection or from the chronic pulmonary disease itself, but were clinically indistinguishable from those with congestive failure until shortly before death. The term "pulmonary failure" might better describe the process. Early diagnosis is important, and more energetic treatment of acute bronchopulmonary infections, particularly with antibiotics, prolongs life. Fulton concludes that chronic pulmonary disease causes considerable morbidity and mortality in middle aged men, and he believes that atmospheric pollution is an important aggravating factor.

Revista Medica de Chile, Santiago

80 707-776 (Dec) 1952 Partial Index

- Quinidine in Treatment of Chronic Atrial Fibrillation D Lamas
R Florenzano G Chamorro and H Donoso—p 707
- Value of Oral Cholecystography in Diagnosis of Gall Bladder Disease
J Klinger R J Kalpán and E Zárate—p 719
- Some Aspects of Obesity Clinical Study F Donoso and A. Jadresic
—p 722
- *Cardiovascular System in Geriatrics Anatomical Study and Clinical Commentary S Grinschpun and D Rosenberg—p 728

Cardiovascular System in the Elderly—The authors reviewed hospital records of 400 necropsies made on the cadavers of 200 men and 200 women who died between the ages of 60 and more than 85. Death was due to cardiovascular diseases in 94 patients (23.5%). Hypertensive cardiovascular disease with cardiac insufficiency and nephrosclerosis was present in 32 cases (34%), myocardial infarction in 14 (14.8%), and arteriosclerotic cardiopathy in 12 (12.8%). Signs of cardiac insufficiency were observed in 63 (67%) out of the 94 cadavers of patients who died of cardiovascular disease. Bacterial endocarditis was observed in six cases (1.5%), nonbacterial endocarditis in 50 (12.5%), pericarditis, either acute or chronic, in 11 (2.7%), aortic atheroma, mild, subacute or acute, in 265 (66.2%), coronary atheroma in 203 (50.7%), diffuse arteriosclerosis in 46 (11.5%), arteriolosclerosis in 114 (28.5%), and syphilitic mesoarteritis in 22 (5.5%). Aortitis coexisted with aortic insufficiency of the Hodgson's type in 49% of the cases

of mesoarteritis and aneurysm coexisted with aortitis in 27.3% of the cases of aortitis. Lesions of arteritis obliterans were observed in six cases (1.5%). The lesions complicated by dry gangrene were located in the legs of patients with acute arteriosclerosis. The authors conclude that arteriosclerosis and arteriolosclerosis are the most important etiological factors in the changes of the cardiovascular apparatus of the elderly. Hypertensive and arteriosclerotic heart disease are the most frequent cardiovascular diseases that cause death in the elderly.

Schweizerische medizinische Wochenschrift, Basel

83 207-226 (Feb 28) 1953 Partial Index

- *Surgical Treatment of Tuberculosis of Lymph Nodes of the Neck. E Kaiser F Jakob and H Wissler—p 207
- Cerebral Circulation in Experimental Controlled Hypotension A Bernsmeier and K Siemons—p 210
- *Study on Controlled Hypotension J Rutkowski S Pokrzywnicki and J Hankiewicz—p 212
- Immunophagocytosis of Cell Elements in the Blood P Miescher—p 216

Surgical Treatment of Tuberculosis of Cervical Lymph Nodes—Radical surgical removal of tuberculous cervical lymph nodes with the scalpel or with the blunt-pointed Cooper scissors was performed by the authors on 221 patients. Of the 221 patients, 117 were children between the ages of 1 and 15, 72 were between the ages of 16 and 30, and 32 were over 30. Intratracheal anesthesia was used by one of the authors in children and adults, while the other employed local anesthesia in adults and nitrogen monoxide and ether anesthesia by intubation in children. Immediate operative results were good in all patients. There were no secondary injuries or post-operative dissemination. Of 167 patients who could be followed up for periods varying from three months to 10 years (with an average of three years and four months), 9 (5.5%) had recurrences, consisting of bean sized, nonfistulizing lymph nodes in the scar area. Of 130 patients in whom the cosmetic results were ascertained, 99 (76%) had excellent results, 27 (21%) had satisfactory results, and only 4 (3%) had large adherent scars. Of the 167 patients who had been followed up, 54 had been subjected to tonsillectomy before the surgical removal of the cervical lymph nodes, of the nine patients who had recurrent tuberculous cervical lymph nodes eight had had their tonsils removed. Tonsillectomy, therefore, does not prevent recurrences and has no influence on the incidence of recurrences. As a result of their experiences the authors state that conservative methods of treatment for tuberculous cervical lymph nodes are time-consuming and results have proved unsatisfactory. On the contrary, radical surgical removal, although technically difficult, proved highly effective in that rapid and definite healing resulted in a large percentage of cases. Surgical treatment is indicated (1) in solid lymph nodes with out necrosis in which suppuration may no longer be expected and which are usually cherry sized, (2) in fluctuating lymph nodes with the skin still intact (surgical intervention should be performed before scrofuloderma develops), (3) in fistulous and occasionally already calcified lymph nodes with not too extensive cutaneous changes, so that healing of skin by first intention may still be possible. Infected lymph nodes with large subcutaneous abscesses in which healing by primary intention is no longer possible and extensive bilateral processes should not be operated on. Lesions of recent origin may be operated on more easily than older ones. The risk of recurrence is greater in patients with recent lesions, who therefore should receive postoperative sanatorium treatment for several months, while extirpation alone may be sufficient for older lesions.

Controlled Hypotension—The ganglion blocking preparation Pendiomid (N,N,N'-N'-3-pentamethyl-N,N'-diethyl-3-azapentane 1,5-diammonium dibromide) was employed to produce controlled hypotension and thus to reduce bleeding in 25 women and 35 men between the ages of 16 and 75 who underwent a variety of operations such as pulmomectomy, lobectomy, thoracophrenectomy, thoracoplasty, thyroidectomy, cholecystectomy, sigmoidectomy, prostatectomy, nephrectomy, and cystectomy. General anesthesia was induced by thiopental sodium or hexobarbital sodium and nitrogen monoxide with

oxygen Curare was used for control of respiration in interventions on the thorax, and free respiratory passage was secured by intubation. The ganglion blocking agent in small doses diluted in isotonic sodium chloride solution (with an average total dose of 150 mg) was injected intravenously, and the blood pressure was measured every three minutes. Surgical intervention began when the systolic blood pressure had reached 60 to 70 mm. Hg. In 24 patients the blood pressure dropped below 60 mm Hg. In 19 of these 24 patients, an average "pause" of 10 to 15 minutes occurred, during which the blood pressure could no longer be measured by auscultation but only by oscillations. In 17 of these 19 patients the pulse of the radial artery disappeared simultaneously, but despite general pallor, the hands and the face remained warm. Cyanosis was never observed. In the stage of the lowest hypotension the patients were completely conscious. The Pendiomid did not exert any effect on the respiration, which remained spontaneous and quiet, with about 20 respirations per minute. The rise of blood pressure after the operation was slow and regular, within 10 hours blood pressure was restored to its initial values. Dilatation of the pupils was restored to normal within six to eight hours. Pressor drugs were not required in any of the authors' patients, but replacement of even small losses of blood is indispensable with induced hypotension. Almost no blood loss occurred in the course of the surgical intervention, making large blood transfusions unnecessary. The operative field could be surveyed easily, and the number of blood vessels requiring ligation was small, thus the operations could be performed rapidly. The amount of general anesthetics used was small because of the reduced metabolism, and consequently the patient recovered consciousness rapidly. Blocking of the ganglions of the sympathetic and parasympathetic nervous systems prevented disturbing reflexes. The postoperative general condition of the patients was much better than that of patients in whom hypotension had not been induced. Secondary hemorrhages did not occur since blood coagulation was unchanged. Without previous elimination of the cerebral cortical influence by general anesthesia, hypotension cannot be induced easily. Intubation and adequate administration of oxygen are of primary importance for making the method safe. The technique of controlled hypotension is advantageous for the patient and convenient for the surgeon and is suited particularly for operations in which large losses of blood may be expected.

Semaine des Hôpitaux de Paris

29 785 826 (March 2) 1953 Partial Index

Collective Acute Lead Poisoning H. Benard A. Gajdos, Gajdos-Török and P. Rambert —p 785

*Transfusions of Red Cells Without Plasma Their Role in Treatment of Anemias P. Cazal —p 789

Disturbances of Auriculo-Ventricular Conduction in Angina Pectoris and Myocardial Infarct R. Vialard —p 793

Transfusion of Red Cells Without Plasma in Treatment of Anemia—Transfusions of whole blood are contraindicated for patients with cardiac and renal conditions in whom the increased volume of fluid may lead to circulatory complications. Transfusions of red cell suspensions will provide these patients with twice as many red cells in the same amount of fluid. Patients with paroxysmal nocturnal hemoglobinuria (Marschafava-Micheli syndrome) are often benefited by transfusions of red cells that have been washed to remove all traces of complement. Various types of anemia may be treated with transfusions of either whole blood or red cells, but the use of red cell suspensions may be more advantageous both to the recipient and to the transfusion center in many cases. Iron deficiency anemias in particular respond quickly to red cell transfusions, when the transfused cells disappear from the circulation, their iron is metabolized and used in the synthesis of new hemoglobin. A single transfusion supplying all the red cells needed by the patient may be considered curative, whereas treatment with iron requires time to become effective. Posthemorrhagic and aplastic anemias, anemias resulting from leukemia, certain constitutional hemolytic anemias, megaloblastic anemias, and secondary anemias are all benefited by transfusion of red cell suspensions. Utilization of red cells by

the transfusion center saves blood and virtually doubles the number of transfusions that can be given without increasing the number of donors. Both the patient and the center profit financially by the saving.

South African Medical Journal, Cape Town

27 149-168 (Feb 21) 1953 Partial Index

Vulval Condyloma Accuminata as Premalignant Lesion in the Bantu G. P. Charlewood and S. Shippel —p 149

*Paralytic Ileus Due to Potassium Depletion S. Grieve —p 153

Anaemia in Obstetrics J. Miller —p 155

Paralytic Ileus Due to Potassium Depletion—In studies of electrolyte balance numerous symptoms and signs have been attributed to either hypokalemia or hyperkalemia. One of the syndromes ascribed to hypokalemia is paralytic ileus. This paper reports two cases of paralytic ileus in which the etiological factor was thought to be hypokalemia. Some investigators have demonstrated the coexistence of intracellular potassium deficiency, metabolic acidosis, and hypochloremia. This state occurs in the presence of normal renal function when there is loss of a single ion such as chlorides or potassium. Numerous authors have stressed the importance of hypochloremia. It does not respond to the usual therapy, being associated with hypokalemia, particularly in postoperative states. The first case described exemplifies this biochemical state. The woman was admitted in a state of gross malnutrition, with chloride and potassium but not sodium deficiency, and her carbon dioxide combining power was high. The paralytic ileus responded well to oral administration of potassium in spite of the fact that her intestinal mucosal absorption might have been deficient and that she had vomiting and diarrhea. The second woman, although showing hypochloremia and hypokalemia, was acidotic and had a normal sodium value in her blood. Renal damage was probably responsible for this, although no retention of urea or other substances occurred until the final stages of the disease. In this case the paralytic ileus responded well to intravenous administration of potassium chloride, although there was concern about accumulation in the presence of gross kidney damage. Oral administration of potassium chloride in doses of from 6 to 18 gm daily has been recommended for the treatment of hypokalemia. This can be given in a glass of milk and should produce no untoward effects if the renal function is normal. When potassium chloride is given intravenously, it is added to the intravenous fluid (dextrose in isotonic sodium chloride solution), 0.26 gm of potassium chloride per kilogram of body weight (18 gm for a patient weighing 70 kg) may be given in eight hours. In both of the patients described here electrocardiography and serum potassium evaluations were done serially. The return of flattened ST segments and T waves to normal indicates adequate therapy, whereas the appearance of spiked T waves is thought to be the first indication of hyperkalemia.

Ugeskrift for Laeger, Copenhagen

115 77-112 (Jan 15) 1953 Partial Index

*ACTH Treatment of Cutaneous Diseases F. Reymann and P. Sjøbye —p 77

ACTH and Cortisone or Salicylic Acid in Rheumatic Affections H. Nielsen —p 81

Motor Symptoms in Herpes Zoster E. Moltke —p 82

Essential Thrombopenia Treated with Corticotropin E. Andersson and B. C. Christensen —p 86

Tapered Ends of Vertebral Arch as Sign of Intraspinous Tumor J. Agerholm-Christensen —p 90

Spinal Lesion as First Sign of Leukemia J. Agerholm-Christensen —p 91

Corticotropin Treatment of Cutaneous Diseases—In Reymann and Sjøbye's opinion the field of indication for corticotropin (ACTH) in dermatology at present includes certain allergic diseases, the pemphigus group, certain erythrodermas (psoriasis, pityriasis simplex), and perhaps lichen ruber. The various drug eruptions constitute an important field of indication. Corticotropin is not indicated in prurigo Besnier and apparently not in pemphigus foliaceus or dermatitis herpetiformis, and is believed to be contraindicated in treatment of burns. The authors advise restriction of treatment with corticotropin to serious disorders where other therapy is without effect. Pos

sible contraindications must be considered in every case, such as psychic disorders, diabetes mellitus and gastric ulcers, and the patients must be observed during treatment for possible complications. Attention is called to the lowering of resistance of the organism to infection in connection with the treatment.

115 149-196 (Jan 29) 1953 Partial Index

- Two New Local Antibiotics Neomycin and Bacitracin L. Szabo—p 149
- *Local Treatment of Cutaneous Infections with Neomycin Bacitracin M. Gade B. Korner and B. Sylvest—p 156
- Neomycin Bacitracin (Nebacelin Ointment) in Infections of Skin A. Perdrup—p 164
- Medicaments with Cortisone Like Effect P. Wedel—p 173

Local Treatment of Cutaneous Infections with Neomycin and Bacitracin.—Seventy-four patients with various stubborn skin infections were treated with Nebacelin ointment containing 5 mg of neomycin and 250 units of bacitracin per gram of ointment base consisting of petrolatum and 10% lanolin. Bacteriological examinations were performed in 34 cases, with determination of resistance in 26. The bacteria oftenest met with were staphylococci. All strains isolated were highly susceptible to the combination of neomycin and bacitracin. The effect was satisfactory in 73% of the cases treated and slight in 14.9%. The infection remained unchanged in 6.8% and in 5.4% was aggravated by irritation from the ointment base. The most frequently treated disorder was eczema, where the ointment proved effective in 27 out of 32 cases. No sensitization was seen in spite of long-continued treatment in some cases.

115 197-230 (Feb 5) 1953 Partial Index

- *Preliminary Results of Prolonged Treatment of Rheumatoid Arthritis with Corticotropin and Cortisone H. Bratlund and C. Holten—p 197
- *Prolonged Treatment of Rheumatoid Arthritis with Corticotropin and Cortisone F. Fischer and K. Bröchner-Mortensen—p 203
- Intubation Treatment of Ileus M. Andersen—p 211
- Gallstones in Girl Aged 10 V. Pedersen—p 217
- Nitrobenzene Intoxications from Field of Industrial Physician O. V. Garnum—p 218

Preliminary Results of Prolonged Treatment of Rheumatoid Arthritis with Corticotropin and Cortisone.—Prolonged treatment with cortisone orally was given to 40 patients, 12 men and 28 women. Thirty-five had true rheumatoid arthritis, four ankylosing spondylarthritis, and one psoriatic polyarthritis, all in the active stage, with all degrees of functional defect and deformity represented. The treatment was always started during hospitalization, after observation for some time. Large doses were given, in order to suppress symptoms as far as possible. Then the dose was gradually and slowly reduced until the lowest dose was established that was capable of maintaining a satisfactory remission. The maintenance dose was on the average not quite 50 mg of cortisone daily, no patient received more than 75 mg daily, and only three received this dosage. The aim was not to secure full remission if the dosage had to be over 75 mg daily. In 30 cases the treatment was begun with corticotropin and in 10 with cortisone. In the former cortisone was gradually substituted for corticotropin. Most of the patients received the same maintenance dose throughout the treatment, but in 11 cases it was necessary from time to time to regulate the dosage because of aggravation of symptoms due to flare up of the disease, intercurrent infections, or increased physical activity. The shortest observation period during maintenance treatment was 100 days, over half of the patients were observed for more than half a year and three for more than a year. The result was good in 33 cases and not satisfactory in 7. At the start of treatment only 7 patients were able to manage their usual work, on discharge the number was 29, and 26 kept their ability to work during the observation period. Good results were obtained even in older patients and in cases of long standing, but the best results were in younger patients and in cases of short duration. The poorest results appeared in women during and after the menopause. The treatment never had to be discontinued because of side-effects. In 16 cases no side-effects occurred. In three cases moderate and transient flare up of symptoms of duodenal ulcer were seen, the only other side-effects were a moderate gain in weight, increased rounding of the face, and transient edema. No reduction of resistance to infection was noted.

Prolonged Treatment of Rheumatoid Arthritis with Corticotropin and Cortisone.—In the Rigshospital 15 men and 36 women with rheumatoid arthritis, aged between 30 and 50 were treated with corticotropin and cortisone for from 1 month to 28 months, 20 were treated for more than six months, and three for more than two years. The average duration of the disease at the start of treatment was 6.3 years. All stages of arthritis were represented. The treatment was begun during hospitalization with prolonged treatment in view. In all cases corticotropin was given at the outset, in 32 cases this was followed after three days by cortisone, while in 19 corticotropin therapy was continued for up to two months. The aim was to maintain the initial effect with as small doses as possible, depending on the patient's tolerance and symptoms. For various reasons the treatment had to be discontinued in eight cases, in three cases it was terminated because of remissions which have now lasted for from three to six months, and 40 patients are still under treatment. According to the criteria of the American Rheumatic Association, the effect of the prolonged treatment was good in 37 cases, slight in 8, and negative in 6. The side-effects seen in almost all cases were usually only an expression of the induced hypercorticism. There were no serious side-effects. Fischer and Bröchner-Mortensen conclude that the treatment is of practical value in the therapeutic management of selected cases of rheumatoid arthritis. Because of the danger of complications, the patients must be selected with careful attention to indications and contraindications and must be closely observed during the entire time of treatment. Active infections, especially tuberculosis, peptic ulcer, hypertension and cardiac and renal disease, are contraindications. In patients with emotional instability and severe neuroses symptoms are often aggravated during the treatment, and an existing osteoporosis may be increased. For the time being conservatism seems advisable in using corticotropin and cortisone at the start of pregnancy. Evaluation of the clinical effect and the side-effects must determine whether the treatment is to be continued. As a rule, it should be introduced only when continuation as a prolonged treatment seems possible.

Zentralblatt für Chirurgie, Leipzig

78 1-48 (No 1) 1953 Partial Index

- *Osteitis Pubis F. J. Götz and H. Boemlinghaus—p 1
- Denervation of Articular Capsule in Treatment of Arthrosis Deformans W. Lemboke—p 17
- Pseudarthrosis of Internal Malleolus G. Bertele—p 20
- Rare Fat Embolism of Pulmonary and Systemic Circulation W. Förster—p 24

Osteitis Pubis.—Millin's method of retropubic prostatectomy has become the most widely practiced technique because of its definite advantages over other methods of prostatectomy, but unfortunately it has increased the incidence of osteitis pubis. Götz and Boemlinghaus present the histories of four patients with osteitis pubis observed at their own clinic, and report 39 additional cases of osteitis pubis among 2,635 patients who had undergone prostatectomy in other clinics, an incidence of 1.48%. Pain is the most important symptom, and it is particularly intense during movements. After discussing the roentgenologic and histological aspects, the authors comment on the treatment, which is mostly symptomatic. Although the symptoms may persist for weeks or months, the process usually subsides spontaneously. The etiology has not been completely explained, but these authors agree with those investigators who assume an infectious etiology. The presence of increased temperature suggests an inflammatory process induced by an organism of low virulence. The rather long incubation period, the leukocytosis, and the increased erythrocyte sedimentation rate are additional evidence for such an infection, but the authors feel that trauma and a vasoneurotrophic disorder are other factors involved in the etiology of osteitis pubis. They believe that trauma is the most important causal factor, and for this reason they stress the need of extreme gentleness in the detachment of the bladder and of the anterior surface of the prostate, that is, during the exposure of the retropubic space. They also now prefer Pfannenstiel's to other types of incision, because in this way damage to the symphysis and to the periosteum of the pelvic bones is avoided.

BOOK REVIEWS

Treatment of Mental Disorder By Leo Alexander M.D., Director Neurobiological Unit Division of Psychiatric Research Boston State Hospital Boston. Cloth \$10 Pp 507 with 143 illustrations. W B Saunders Company 218 W Washington Sq Philadelphia 5, 7 Grape St., Shaftesbury Ave, London W C.2 1953

In discussing the major approaches to the treatment of mental illness, the author states that "there is a great deal of evidence that mental disease is merely an example of a specific organ choice, namely, of the central nervous system, in a psychosomatic illness. This view may be further supported by the well-established observation that mental disease may alternate with other psychosomatic illnesses, such as ulcerative colitis and asthma. Certain basic personality patterns of psychotic and psychosomatic patients are similar, especially the rigidity of the defenses during the healthy intervals."

Throughout this comprehensive textbook, the author stresses the importance of physical methods of treatment, which he believes are often overlooked by those whose approach to the treatment of mental disorder is completely psychological. The book is of special value to psychiatrists working in mental hospitals because of the attention given to all details of electrical, chemical, and surgical therapy, and the careful documentation of references at the end of each chapter. A considerable portion of the book is devoted to practical treatment techniques, the combining of psychotherapy and physical treatment, the role of the nurse during treatment, and the treatment of various states of intoxication of external origin. This volume is recommended as a valuable reference book not only for residents in psychiatry, but for all psychiatrists.

Human Parasites and Parasitic Diseases for Students, Laboratory Workers, Practitioners of Medicine and Public Health. By K. D. Chatterjee M.D., Visiting Physician R.G. Kar Medical College Belgachia Calcutta. Cloth. \$16.75 6 £ Pp 766 with 328 illustrations. The Author 6 Amrita Banerjee Rd. Kalighat, Calcutta 26 [distributed by Messrs. Das Gupta & Co. Ltd. 54/3 College St. Calcutta 12] 1952

This textbook on Protozoa and helminths and the diseases they produce in humans was first conceived by the author in 1935 to meet the need for a comprehensive treatise on parasitological medicine. In the foreword Col. H. E. Shortt, I.M.S. (Retired), director of the department of parasitology, London School of Hygiene and Tropical Medicine, comments on the competency of the author, the completeness and up-to-date-ness of the volume, and the number of excellent illustrations.

The treatise has 12 chapters and a subject index. Many relevant references are found at the end of chapters 3 through 12. The first chapter contains an introduction to parasitology, technical terminology, the epidemiology and pathogenesis of animal parasites, laboratory diagnosis, and brief therapeutic and prophylactic considerations. One chapter describes and classifies the parasitic Protozoa of man. Another is devoted to thorough consideration of the amebas found in man, with emphasis on the pathogenesis and clinical features of amebiasis. Chapter 4 considers intestinal flagellates, presents comprehensive information on African trypanosomiasis and Chagas' disease, and takes up the three clinical types of leishmaniasis, with monographic treatment of kala azar, a prevalent disease in India. Even more expanded treatment is given to Plasmodium and to malaria, which is the greatest single cause of death in India. One chapter discusses blackwater fever. A description of *Balantidium coli* concludes the section on Protozoa. Chapter 8 is an introduction to the parasitic worms, including classification, historical landmarks, development of anthelmintic medication, and diagnostic procedures. Other chapters contain valuable information on roundworms, tapeworms, the trematodes, and anthelmintics. The terminology and classification are those generally accepted by parasitologists, but most readers will take exception to the grouping of all parasitic worms under one phylum.

The most striking feature of the book is the wealth of original illustrative material, including diagrams of life cycles and detailed morphological characters of parasites, photographs, roentgenograms, photomicrographs, and fair color reproductions of pathological changes caused by the parasites, as well as stages useful in laboratory diagnosis. The illustrations are enhanced by the excellent quality of the paper. The volume has a pleasing format, the type is clean, and typographic errors are few. The binding is probably not substantial enough to withstand hard use.

The book emphasizes parasitic diseases of major clinical importance in India, such as amebiasis, kala azar, malaria, hookworm disease, and Bancroft's filariasis. Medical entomology is considered only insofar as arthropods are biological vectors of protozoan and helminthic agents. The one serious defect is the inadequate presentation of the public health aspects of parasitic infections. Dr. Chatterjee is to be congratulated for this comprehensive, authoritative contribution to the literature on parasites. His text should have wide acceptance.

Synovial Fluid Changes in Joint Disease By Marian W. Ropes M.D., Associate Physician Massachusetts General Hospital Boston, and Walter Bauer M.D., Chief of Medical Services Massachusetts General Hospital. Cloth. \$4 Pp 150 with 15 illustrations. Published for Commonwealth Fund by Harvard University Press Cambridge 38 Mass. Oxford University Press Amen House, Warwick Sq. London E.C.4 1953

This little monograph presents the authors' 20 years of experience with articular anatomy, physiology, and pathology. The book begins with a discussion of normal articular fluid. Much of the work presented was done on cattle, but the findings are apparently comparable to those in fluid recovered post mortem from human joints. The second chapter presents a general analysis of the variations that can occur in pathological states. The comprehensiveness of this section is reflected in its subheadings: pressure, amount and gross appearance of fluid, bacteriology, cytology, proteins, electrolytes, nonelectrolytes (including sugar, lactate, lipids, and cholesterol), enzymes, and mucin. On the basis of these studies, the authors divide abnormal joint fluids into two main groups: those characteristic of diseases of traumatic origin and those found in rheumatoid arthritis and diseases of infectious origin. In chapters 3 and 5 these two groups are discussed in detail and in relation to specific disease entities, whereas chapter 4 concerns fluids that resemble both groups. A tremendous amount of factual information is included, and the book is illustrated with photographs, tables, and charts, some of which are difficult to understand. Whether the facts justify all the conclusions drawn by the authors as to the clinical value of the various examinations may be questionable, but the book is undoubtedly valuable to the student of articular physiology and pathology.

Operative Thorakoskopie Von Primarius Dr. Stanko Dujmušić. Aus dem Kroatischen übersetzt von Mag. pharm. und Dr. med. Rudolf Herr, Facharzt für innere Erkrankungen Wien. Cloth \$11.50 Pp 222 with 204 illustrations. Verlag für medizinische Wissenschaften Wilhelm Maukisch Alserstr. 19 Wien VIII/65 Düsseldorf 1953

This monograph on operative thoracoscopy is timely and well written. Although the field is narrowed to a specific procedure, the many facets of the subject are adequately presented. The types of pleural adhesions and their relation to thoracoscopy are discussed. Adhesions are clearly depicted in both illustrations and text, and a picture of each is included. The use of green, red, and black coloring (figures 52 and 53) in the illustration of a new operating thoracoscope is commendable. Figures 10 and 11, left and right views of the upper mediastinum, are excellent. To give a third dimensional effect, the figures are drawn so that the view is upward into the chest from below, with just enough obliquity so that both the upper mediastinum and the thoracic inlet are clearly visible. The color in these illustrations is of a good quality. Numerous roentgenograms amplify the text. The book is recommended to anyone with a good reading knowledge of German interested in chest diseases and, particularly, operative thoracoscopy.

Monographs in Medicine: Series 1. Editors William B. Bean, M.D. Professor and Head of Department of Medicine, State University of Iowa Iowa City Associate editors Morton Hamburger M.D. Associate Professor of Medicine University of Cincinnati School of Medicine Cincinnati John A. Leutscher Jr. M.D. Associate Professor of Medicine Stanford University School of Medicine San Francisco and Stewart Wolf M.D. Professor and Head of Department of Medicine University of Oklahoma School of Medicine Oklahoma City Cloth. \$12. Pp 655 with illustrations Williams & Wilkins Company, Mount Royal and Guilford Aves. Baltimore 2, 1952.

With this book a new series of medical monographs is begun. Monographs serve a need in medical literature not filled by any other form. They review and orient at a pace slow enough to be highly readable in comparison to many journal articles, and thus makes them informative rather than only documentary. At the same time they do not exhaust the reader's patience as a forbiddingly long and detailed book might. The editors are to be congratulated on the excellence of the initial selections, which vary from a most serious article on respiratory failure to the rare discussion on loud precordial noises. Other general subjects include body fluids, angiocardiology, portal hypertension, pheochromocytoma, sickle cell anemia, growth of erythrocytes, and an interesting essay called "Talking with the Patient." Infections and chemotherapy are considered in sections on cortisone and infection, rheumatic fever, amebiasis, malaria, encephalitis, and antineoplastic chemotherapy. This series takes a place somewhat between the more detailed monographs in the series *Recent Advances in Internal Medicine* and the somewhat less detailed but more comprehensive *Annual Review of Medicine*. Like these, it is certain to be welcomed by intelligent readers and to serve them well.

Atlante di citodiagnostica del carcinoma dell'utero. Dal Dr. Enzo Martella. Prefazione del Prof. G. Tesauro. Cloth. Pp 24. 27 plates. Casa editrice V. Idelson di E. Gnocchi e F. E. de Marinis. 19 Naples. 612, 1952.

This atlas originated in the obstetric and gynecologic clinic of the University of Naples, where the Papanicolaou vaginal smear method has been intensively studied during the past two years. The seven brief sections are devoted to various techniques for obtaining vaginal and cervical smears, an explanation of the morphology of the different exfoliated cells in the female genital tract, the morphology of inflammatory elements, the general criteria of malignancy, the morphology of the exfoliated cells in carcinoma of the cervix and endometrium, causes of error in cytological studies, and the value of the cytological method in diagnosis of cancer of the uterus. There is a well selected bibliography at the end of the text. The main part of the book, however, consists of 27 plates illustrating normal and pathological cells. For those who cannot read Papanicolaou and Traut's or Ayre's book on the same subject but can read Italian, this book is highly recommended for its exposition of cytodiagnosis of cancer of the uterus.

Pathologie du pied: Physiologie, clinique, traitement médical, orthopédique et chirurgical. Par Jean Lellèvre, chef de Clinique chirurgicale à la Faculté de médecine de Paris. Préface du Dr. Merle d'Aubigné. Paper. 4500 francs. Pp 585 with 518 illustrations. Masson & Cie. 129 boulevard Saint-Germain. Paris. 6^e 1952.

The author has done considerable research and clinical work. His book includes chapters on the prehistoric foot, the physiology, architecture, and roentgenographic aspects of normal and abnormal feet, supernumerary and sesamoid bones, the mechanics of lines of force, the dynamics of the foot, including its movements, the physiology of bones and joints, normal and abnormal gait, a critical study of shoes and the modifications of shoes, prostheses, and arch supports, congenital malformations of the foot, flat feet of various types, metatarsus varus, and surgery for the residual effects of infantile paralysis.

There are also chapters on fractures in and around the ankle and foot, subastragalar dislocations, malunited fracture of the ankle, fractures of the bones of the feet, rupture of the achilles tendon, pes cavus, painful flat feet, rachitic feet, bow legs and knock knees, tarsal scaphoiditis, epiphysitis and apophysitis, hallux valgus, hammer toes, hallux varus, hallux rigidus, exostoses, arthropathy, arthritis, tumors of the bones, gout and infections, synovitis, rare diseases, vascular and circulatory disorders, bursitis, tumors of the soft tissues, minor

disorders of the feet such as hyperostosis, and plantar warts and disorders of the toenails. There is a very good chapter on surgical technique. The author recommends the technique of Dr. Merle d'Aubigné for osteotomies, extra articular stabilization of the ankle, tarsectomy, tendon transplants, amputations, and plastic operations.

There are many illustrative line drawings. The bibliography is large and fairly up-to-date.

Food-Borne Infections and Intoxications. By Fred W. Tanner. Ph.D. D.Sc. and Louise P. Tanner. Ph.D. Second edition. Cloth. \$12. Pp 769. Garrard Press Publishers. Champaign Ill. 1953.

This reference book deals with sanitation problems, food-borne diseases, and food poisoning caused by bacterial toxins and by metals. It is a supplement to the discussions in the authors' "Microbiology of Foods," published in 1944. The format is good, there are relatively few typographic errors, and a good index is included. A comprehensive review of the literature is presented indiscriminately, leaving the reader to draw his own conclusions. The evidence obtained from human feeding experiments with heat-killed cultures of *Salmonella* has failed to support the theory that heat-stable toxins of *Salmonella* may cause illness when eaten by man. In spite of this the authors consider heat-stable products of *Salmonella* a cause of illness in man. The book is useful as a historical review of the literature but is not too valuable for the clinician.

Clinical Allergy. By French K. Hansel. M.D. M.S. Director. Hansel Foundation for Education and Research in Allergy. St. Louis. Cloth. \$17.50. Pp 1005 with 89 illustrations. C.V. Mosby Company. 3207 Washington Blvd. St. Louis 3. 1953.

This general text on allergy covers practically all aspects of the subject. The portions of the book dealing with asthma, problems in internal medicine and dermatoses are handled well, but the material seems to be mainly quoted from other workers. The sections on rhinological conditions, which are the result of the author's large experience, constitute the best feature of the volume. Unfortunately, a number of unconfirmed concepts are stressed, such as extremely small, desensitizing doses, sublingual antigen therapy, *Staphylococcus* toxoid, and the empirical use of house dust in asthma. The book will be useful to the expert but may be misleading to those who have only a moderate knowledge of clinical allergy.

Handbook of Dangerous Materials. By N. Irving Sax. Toxicologist, General Electric Co. Schenectady N.Y. Assisted by M. J. O'Herin and W. W. Schultz. Cloth. \$15. Pp 848 with illustrations. Reinhold Publishing Corporation, 330 W. 42d St. New York 18. 1951.

This book contains an enormous amount of information on the hazardous properties of more than 5,000 compounds and chemical formulations. It presents the chemical formulas, physical properties, toxicity, symptoms, antidotes, and methods of handling the compounds in a concise, summary form. In addition, the book contains sections on explosives, fungus diseases and fungicides, and radiation and radiation hazards, as well as complete shipping regulations for various chemical compounds. It is the most complete reference book available to date on general toxicology. The organization and careful indexing of the book make the large amount of information readily accessible. This handbook is a valuable reference for industrial physicians, toxicologists, industrial health engineers, and plant superintendents.

A Bladder and Bowel Training Program for Patients with Spinal Cord Disease. By Edith Buchwald. M.A. A.R.P.T. Margaret McCormack, R.N. and Emille Raby. R.N. Rehabilitation monograph III. Acknowledgement is made to United Mine Workers of America Welfare and Retirement Fund for their assistance in preparation and publication of this monograph. Paper. \$1. Pp 35 with 12 illustrations. Institute of Physical Medicine and Rehabilitation, New York University—Bellevue Medical Center. 400 E. 34th St. New York 16. 1952.

This "rehabilitation monograph" is a brief, simple presentation that discusses bladder training, bowel training, aids used in attending to toilet needs, examples of bladder routines, case studies, and organizational procedures used in expediting the training program. The monograph is of interest to nurses caring for patients with bladder and bowel incontinence and to the patients themselves.

TO THE EDITOR—A 20 year-old man first noticed warts at age 15, and they have progressed until, at present, he has 160 warts on his hands, some 4 to 5 cm in diameter with a 1 cm elevation, and about 500 scattered over his forearms, legs, and feet. He has tried oxytetracycline (Terramycin) and vitamin A in heavy doses, without success. Fulguration seems to make them recur in greater numbers. I was told that a vaccine has been used successfully for treatment of warts in dogs and cattle. Please comment.

Paul L. Bradley, M.D., Dalton, Ga.

ANSWER—The case described is so unusual that a biopsy should be performed to substantiate the diagnosis of common warts. Warts are strange in their behavior. They have been known to disappear spontaneously without treatment, and they have sometimes been extremely obstinate to all forms of therapy. Warts have been treated internally, externally, and psychotherapeutically, with varying results. Among the internal remedies that have been used are bismuth sodium triglycolamate (Bistramate), bismuth subsalicylate injection, protiodide of mercury, arsenic, dilute hydrochloric acid, magnesium sulfate, oxytetracycline, aureomycin, and chloramphenicol. There have been reports of successful treatment of warts by suggestive therapy. On the basis of experimental studies and statistics, Bruno Block and others have gone so far as to recommend this as the method of choice in the management of verrucae. This therapeutic regimen consists of verbal suggestions combined with such procedures as painting the warts with eosin, giving injections of isotonic sodium chloride solution, or giving placebo doses of roentgen rays. This consultant has not been able to corroborate these results. Immunologic therapy, often effective in treating cattle, is of questionable value in human infections. Some believe the good results observed are due to suggestive therapy. Biberstein (*Arch Dermat & Syph* 50 6, 1944) is reported to have cured between 75% and 80% of 139 cases with wart vaccine. The following technique is used in preparing the autolysate vaccine. The warts are surgically removed, with 1% procaine (Novocaine) as a local anesthetic, and cut into small pieces. They are then ground in a mortar with two or three parts of isotonic sodium chloride solution until a pulpy consistency results. The mixture is allowed to stand at room temperature for 24 hours and then passed through a Berkefeld filter. The filtrate is then sterilized for two hours in a water bath at 56 to 60 C, and phenol is added to make a 0.5% solution. The vaccine is given twice weekly subcutaneously in doses of 0.2 to 0.4 cc for a total of 2 to 30 subcutaneous injections, as indicated. The best form of treatment is to destroy the warts and their roots by electrodesiccation using a local anesthetic. As warts are due to a virus and are autoinoculable, the patient should come in for examination at periodic intervals until there is a discontinuance of the occurrence of new ones.

TO THE EDITOR—I should appreciate information on the current treatment of *Strongyloides stercoralis* infection.

Glenn T. Howard, M.D., Alice, Texas

ANSWER—The treatment for strongyloidiasis is not entirely satisfactory. Eradication is difficult, because parasites multiply within the body by hyperinfection and superinfection. The adults are found in the intestinal wall while the larvae circulate in the blood stream and take the route through the right heart to the capillaries of the lungs. Treatment must be directed

toward both adults and larvae in the various locations in the body. Enteric-coated, medicinal methylosaniline chloride (gentian violet) for oral use affects worms only in the gastrointestinal tract. Faust recommends use of 0.06 gm three times daily before meals for 7 to 10 days. One week of rest is followed by a second course of enteric-coated methylosaniline chloride. The interval between courses allows the larvae in the blood and lungs to reach the gastrointestinal tract. If the tablets are old or the bowels hyperactive, the enteric coating may be dissolved too low in the gastrointestinal tract to affect the adult worms. To make sure the drug comes in contact with the worm, it may be administered by duodenal tube, using 25 ml of a 1% aqueous solution. Sometimes there are foci of parasites outside the gastrointestinal tract. For these methylosaniline chloride has been given intravenously. The dose is 10 to 25 ml of a 0.5% solution given on alternate days for a period not exceeding 10 days. During and after the treatment the patient should try to avoid reinfection by preventing constipation and by cleansing the perianal area frequently, especially after evacuation of the bowels. In this way the filariform larvae will be prevented from entering the mucosa of the colon or the skin around the anus.

Methylosaniline chloride is contraindicated in pregnancy and nephritis. It is a mild cardiac stimulant and is slightly irritating to the mucosa. Treatment should be discontinued temporarily if the urine becomes blue or if nausea and vomiting become a problem. If the drug is given intravenously or by duodenal tube, the patient should be hospitalized and given personal supervision. After treatment the worms die slowly, and larvae are found in the stool for a long time.

TO THE EDITOR—During a tonsillectomy in an adult under general anesthesia there was severe hemorrhage. About two and a half hours was required to control the bleeding and even then a sponge had to be sutured in the right fossa for hemostasis on that side. During the procedure, a needle broke off and lodged in the superior pole of the right fossa. This was demonstrated roentgenographically. What would be the medicolegal status of this case if the needle were left in indefinitely? The patient and his wife were advised that the needle was in the throat. If the needle should be removed how soon should it be done? It was not done at the time of the tonsillectomy because of the severe bleeding.

M.D., Pennsylvania

This inquiry was referred to two consultants, whose respective replies follow.—ED

ANSWER—A needle located near the great blood vessels of the neck constitutes a potential threat to the patient and should be removed as early as possible. The sooner the problem is attacked, the greater the chances for successful removal. Tamarin and Bergendahl (*Eye, Ear Nose & Throat Month* 31 196, 1952) report favorably on the merits of the Berman metal locator, which, when passed over the area adjacent to the foreign body, will respond with a signal if the object is magnetizable. The locator itself does not possess a magnetic field for extracting the foreign body, its function is merely to detect and localize. Following localization, an exploring forceps is inserted into the tissues until the tip reaches the depth of the foreign body, and the needle is grasped. It may then be twisted until one end is brought into view and seized with another forceps. As an alternative procedure, after the needle has been fixed with the forceps, the operator may dissect until the needle is exposed.

ANSWER—Medicolegal abstracts of court decisions based on alleged negligence in leaving foreign substances in patients' bodies have appeared in THE JOURNAL from time to time. Almost unanimously, they support the rule of law that a physician, in the treatment of a patient or the conduct of an

operation, must possess and exercise that degree of skill and care possessed and exercised by doctors of his school of practice, in the same or in a similar community, and in like practice, having due regard for the condition of the patient and the progress of medical or surgical science at the time. In order to establish want of care or skill, it is necessary to establish what is good medical or surgical practice by competent medical testimony. An exception obtains when there is manifest such obvious gross want of care or skill as to afford of itself an almost conclusive inference of negligence, thus dispensing the necessity of testimony by expert witnesses. Departure from good medical or surgical practice, i. e., failure to possess or exercise the requisite degree of skill of care, the proximate result of which is injury to the patient, constitutes an actionable wrong. Whether to remove a foreign substance from the body or leave it in indefinitely depends, then, on every medical aspect of the case. It is a diagnosis calling for the same degree of skill and care as any other diagnosis, and the responsibility or liability of the physician is likewise the same.

MEASLES IN INFANTS

TO THE EDITOR—*Is it possible for a 1-month-old infant, born of a mother who has had measles (rubeola), to have measles after adequate exposure? What would be the clinical manifestations of the disease at this age? What would be the chances of this infant's contracting rubella (German measles) if exposed? What is the youngest age an infant may have exanthema subitum (roseola infantilis)?*

Edward S King M.D., Shelby, N C

ANSWER—It is believed that if a mother has had measles her child will be immune at birth. Such immunity is generally considered effective for the first five months of life. The nasal passages of infants in the first few months of life have been swabbed with nasal washings from measles patients without producing clinical measles (Herrman, 1915). Measles has, however, been diagnosed, though uncommonly, at age 3 months. In reality, measles is rare before 6 months of age, but the opportunities for exposure are usually much less than after that period. If the mother has measles at the time her baby is delivered measles may develop in the infant within the first week after birth. In such cases, the rash may be diffuse but the constitutional symptoms not necessarily severe. The situation in regard to rubella is similar. Rubella is seldom diagnosed before age 6 months. Zahorsky reported that three fourths of all cases of exanthema subitum occurred between ages 6 and 18 months, his youngest patient was 3 months old.

OVALOCYTOSIS

TO THE EDITOR—*A 16-year-old girl complained of excessive fatigue. Physical examination and the history revealed nothing except for removal of the tonsils and adenoids at 9 years of age and irregular menses for the last three years. Blood examination done in my laboratory revealed 2 700 000 red blood cells per cubic millimeter, 6.2 gm of hemoglobin per 100 cc, and 10 000 white blood cells per cubic millimeter, with polymorphonuclears 69%, lymphocytes 19%, basophils 7%, monocytes 3%, young forms 10%, and eosinophils 1%. Because there were oddly shaped red cells a smear and a sickling preparation were submitted to the clinical diagnostic laboratory at our university. The findings were ovalocytosis and frank hypochromic microcytic anemia. The patient has been reassured that her red blood cell peculiarity is of no consequence and she has been taken off the high school basketball squad until her blood becomes normal. She is receiving an iron and vitamin preparation. I find little about ovalocytosis in the books available, and I should appreciate comments.*

M.D., Mississippi

ANSWER—Ovalocytosis is a hereditary, non-sex-linked trait characterized by the presence of oval-shaped red cells in the peripheral blood, in varying numbers, occasionally reaching 90%. There is no definite relation to anemia, although an occasional tendency toward hemolysis has been reported. The lack of association with anemia and absence of racial pre-

disposition distinguish ovalocytosis from sickle cell anemia and from Mediterranean anemia with its target cells. In the normoblast, the cell body is round. The elliptic shape appears first in the reticulocyte stage of red cell development, but full development of the oval shape is reached only in the mature normocyte. In the newborn, ovalocytes are scarce. They increase gradually from the 12th day and reach adult numbers after the third or fourth month. Resistance of ovalocytes in hypotonic solutions is not different from that of normally shaped red cells (normocytes). The cause of the anomaly is not known. It has been suggested that it is an atavistic throwback. In this connection, it is worth mentioning that similarly shaped red cells are present in lower vertebrates and in camels. In the case described, it would be of interest to examine members of the family and other blood relatives for the possible presence of the same trait.

PALLIATIVE TREATMENT FOLLOWING MASTECTOMY

TO THE EDITOR—*A woman aged 64 had her left breast removed three weeks ago because of scirrhus duct carcinoma with grade 2 malignancy. She weighs only 110 lb (49.9 kg) feels well now, and is up and about. Roentgenograms of the lungs show what our roentgenologist feels are two small metastatic nodules in the left lung (faintly seen). I would like to give this patient male hormones. What is the proper dosage of methyltestosterone, and should it be swallowed or given sublingually?* M.D. Wisconsin

ANSWER—In a woman with soft tissue metastasis who is five years or more past the menopause, the hormone of choice for palliation is estrogen. The dose is 5 mg of diethylstilbestrol three times a day after meals or an equivalent dosage of one of the other forms of this drug. If there is no improvement in the patient's condition, testosterone may be tried and should be given intramuscularly in a dose of about 50 mg three times a week.

NECROBIOSIS LIPOIDICA DIABETICORUM

TO THE EDITOR—*Information is requested on the treatment of necrobiosis lipoidica diabeticorum by surgical excision and skin grafting. The patient is a 27-year-old housewife with mild diabetes controlled with insulin. The skin lesion on the dorsum of the left foot is the size of a silver dollar and interferes with locomotion.*

H Hanford Hopkins M.D., Baltimore

ANSWER—Treatment of necrobiosis lipoidica by surgical excision and skin grafting has been carried out in so few cases that relatively little information is available for guidance. In this consultant's experience, two patients so treated had a satisfactory result. Not much is known about the cause of this condition, one possibility is that local arterial disease may be present. If conservative measures are employed, lesions usually heal with the formation of a thin, cellophane-like covering. After such healing, no disability other than disfigurement results. In any case, if surgery is contemplated, any superimposed infection should be controlled and excision made with a relatively wide margin to insure postoperative healing and success of grafting.

INFLUENZAL MENINGITIS

TO THE EDITOR—*What are the recognized criteria for cure of influenzal meningitis in children?*

Edward S King, M.D., Shelby, N C

ANSWER—Most physicians feel that a sterile culture must be obtained from the cerebrospinal fluid and that the constituents of the fluid must have returned to normal before pronouncing a cure, however. Hoyne, who gives no intrathecal treatment, seldom makes more than one lumbar puncture, which is done for diagnostic purposes. He bases recovery on clinical findings. If there is an early diagnosis, patients are frequently well in from 8 to 10 days, and, among a relatively large number of patients, there have been almost no relapses.

TREATMENT OF CRYPTORCHIDISM

TO THE EDITOR—What is the latest treatment for unilateral cryptorchidism in a 4-month-old baby?

M D, Rhode Island

ANSWER—The best procedure in cases of cryptorchidism probably is as follows 1 Wait until the patient is between 2 and 3 years old 2 If the testis is still undescended at that age, give chorionic gonadotropin intramuscularly in a dose of 500 units three times a week for six to eight weeks 3 If descent fails to occur, the testis should be brought into the scrotum by surgical procedures It is important that the operation be carried out by a man with special experience in this field

NOCTURNAL ERECTIONS

TO THE EDITOR—I would like to comment on the query "Painful Nocturnal Erections" in THE JOURNAL April 4, 1953, page 1246 Too often, situations like this are quickly transferred to the psychiatrist's domain, because the history and results of the physical examination are relatively normal I would suggest that the following possibility be evaluated before psychotherapy is considered Seminal fluid is a mixture of secretions from various glands, which contains, among other things, various salts in solution After coitus, a residual amount of seminal fluid remains in the urethra Unless this is removed by urination, it solidifies, and crystals forming from the various salts present may prove sufficiently irritating to the urethral mucosa to provide a stimulus for erection, with painful sequelae Occasionally, the pain may be severe enough to arouse a man from a sound sleep There is slight hesitancy of urination because of both the erection and the accumulation of dried debris within the urethra Urination completely relieves the condition, because the irritating crystals are washed out Detumescence follows immediately Men who perform this postcoital ritual who have no organic disease are not bothered with painful nocturnal erections Apparently, the desire to leave the warmth of a bed to perform this necessary act varies with different men and also, lessens with advancing years In view of the essentially normal history and physical condition of the patient described, the suggested regimen may enable him to get his just due after 14 years in the way of an undisturbed night's rest This syndrome could appropriately be named the "lazy man's dilemma"

Joseph M Konrad, M D
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TREPONEMAL IMMOBILIZATION TEST

TO THE EDITOR—Since some of the answers regarding syphilis in Queries and Minor Notes in THE JOURNAL March 14, 1953, imply infallibility in the results of the treponemal immobilization test, I should like to comment on it The treponemal immobilization test can only measure the presence of treponemal immobilizing antibodies The clinical significance of the presence or absence of such antibodies must be assessed in relation to collateral evidence obtained from the patient's history, physical findings, and other serologic tests It must also be interpreted in the light of general as well as specific immunologic knowledge Present evidence indicates that treponemal immobilizing antibodies develop only in response to either treponemal infection or injection of killed treponemes Thus a repeated positive treponemal immobilization test is more specific evidence of a treponemal infection than a repeated positive standard serologic test with lipid antigens The significance of a negative result in the treponemal immobilization test is less certain In the untreated syphilitic patient who has gone beyond the secondary stage, a negative result is probably rare The treated patient presents a more complicated problem, since treponemal immobilizing antibodies are known to disappear in a large proportion of patients treated early

in the course of the disease Thus, for the patient described in the query on page 962, the unequivocal statement, "The question of whether the patient described ever had syphilis can be answered by means of a treponemal immobilization test," is not in accord with known facts If the test result is positive, the patient most probably had a treponemal infection, but, if the result is negative he may or may not have had syphilis

It also seems advisable to emphasize the restrictions in the interpretation of statements such as (page 963) "the incidence of such biological false positive tests is probably about 30 to 40% of all positive reactors routinely discovered in certain population groups" There is an increasing tendency among physicians to consider as biologically falsely positive all positive serologic test results occurring in their practice The limitations of present observations might be better expressed as follows In patients with repeated positive standard serologic test results in whom there is no history or clinical evidence of syphilis and in whom the results of spinal fluid examination are negative, a varying number will prove to have negative results in the treponemal immobilization test Among such patients studied in our laboratory, the proportion showing positive treponemal immobilization tests has varied from 35 to 97%, depending on the racial, economic, and geographical origin of the group

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SELF-EXAMINATION OF THE BREASTS

TO THE EDITOR—In THE JOURNAL, Jan 3, 1953, page 86, is a query on "Self-Examination of the Breasts" For many years it has been advocated that women be taught to examine their own breasts periodically In that time I have never seen a criticism of this method My own point of view has been of slow growth after many years of attempting to train clients in periodic health examination During about 20 years of this period I have had the privilege of participating in the meetings of two active Tumor Boards, 17 years of this period being spent sitting with the Tumor Board of a grade A university medical school

The first objection to teaching a woman periodic examination of her breasts is that it makes her unduly cancer-conscious, and, contrary to some opinion, apparently that cancer-consciousness is not completely eliminated by the reassurance of her physician Secondly, if one is satisfied with any such maneuver, one has missed the opportunity of teaching the patient periodic check-up that will include the possibility of discovering the occurrence of undetected cancer not only in the breast but in the cervix and corpus uteri, ovaries, large bowel, stomach, bones, blood forming organs, and all other areas and all other tissues except, as someone has said recently, the lens of the eye It may even be that the patient is cancerous and does not "merely" have a cancer

In recent years it has seemed increasingly imperative to me that, while we continue to be tolerant of our present methods of handling so dreadful a disease as cancer, we press on to a more positive attitude, actually aspiring to and anticipating the time when we can leave mutilation behind, no matter how this is achieved The time is in sight when the oncologist should be neither exclusively a surgeon nor a radiologist nor an internist but one who is especially equipped for the integration and coordination of the knowledge of cancer, as to both diagnosis and treatment, who will directly, positively, and consciously seize on every leverage that will hasten the day when the treatment of cancer will involve minimal or no mutilation The one patient today in 80,000 who cures himself spontaneously of cancer will then become the rule rather than the exception The oncologist even now should seek to control both macrocosmic and microcosmic carcinogenic agents This field, while somewhat developed already, should be more ardently attacked

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HOME CARE OF RHEUMATIC FEVER PATIENTS

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In October, 1948, a two-and-a-half-year pilot project for home care of children with active rheumatic fever was instituted at Montefiore Hospital, New York City. This project was sponsored by the New York Heart Association and was an extension of the home care program begun at Montefiore Hospital in 1947.¹ The purpose of the project was to determine whether a standard of care comparable to that given in a general hospital or in a specialized institution for the care of patients with rheumatic fever could be given in the home with perhaps greater over-all benefit to the child. The program also covered the emotional and social problems of the rheumatic fever patient and his family. This report, however, is limited to the medical aspects of the program.

ORGANIZATION

The children included in the program were drawn from the geographical area of upper Manhattan and Bronx County of New York City, an area roughly 20 miles long and 6 miles wide. They were referred from various sources including the wards and clinic of Montefiore Hospital and other voluntary and municipal hospitals in the city, private physicians, and various social and voluntary agencies, including the New York Heart Association. Some patients who had been receiving care elsewhere were self-referred.

All the children were examined at home or at the referring hospital by one of us. The presence of active rheumatic fever requiring continued care at bed rest was established by clinical examination and appropriate laboratory tests. The suitability of the home situation was determined by the examining physician and the social worker. The evaluation process included a home visit in every case, and pertinent information was obtained from social workers or agencies that had had previous contact with the family.

Fairly rigid criteria were necessary in establishing the suitability of the home for the type of care planned. The following minimal standards were established: (1) the

inability of the family to afford the necessary medical care on a private basis, (2) the willingness and ability of the parents or parent (broken homes were frequently encountered) to undertake a long, exacting regimen of unpredictable duration and outcome, and (3) a suitable physical environment so that the child could have his own bed and, preferably, his own room for the purpose of isolation from respiratory infection in the home.

On the basis of these criteria, of the 88 applicants during the 30 month span of the program, 45 were accepted, while 43 were rejected or withdrew their applications when the program was explained to them in detail. Twenty-one applicants were rejected because their rheumatic fever was no longer active, or the disease was not diagnosed as rheumatic fever, 18 because of inadequate home environment or uncooperative family, and 4 for various other reasons.

The care of the child in the home was maintained by a staff of two internists, a psychiatrist, a psychologist, a psychiatric social worker, a dietitian, and an occupational therapist. The Visiting Nurse Service of New York supplied nursing care, and dental care was available at home when indicated. Children who required hospitalization during the program were admitted to a special rheumatic fever ward on the medical service at the hospital. Here we continued their supervision. On discharge from the hospital, most of the children were returned to the program. After rheumatic activity had subsided patients were discharged from the home care program to the care of the family physician. If no family physician was available the child was followed in the Montefiore children's cardiac clinic. The internists associated with the program were also on the staff of this clinic, thus, a continuity of medical care was established.

PLAN OF MEDICAL CARE

Each patient was seen by one of the internists at least once weekly and more often as indicated. Patients with congestive heart failure required more frequent visits.

From the Division of Social Medicine and the Medical Division, Montefiore Hospital. Drs. T. Duckett Jones and Ann G. Kuttner of New York and Dr. Benedict F. Massell of Boston assisted in the initiation and organization of the program. This study was supported by a grant from the New York Heart Association and initiated as a pilot project for the New York Heart Association in October, 1948.

¹ Cherkasky M. The Montefiore Hospital Home Care Program. *Am J Pub Health* 39: 163, 1949.

The mother was oriented in regard to the chronic course of the disease and was instructed to call the physician if anything unusual happened. Emergency service was always available, but the number of emergency house calls was very small.

When the child entered the program, a regimen of complete bed rest was continued or initiated. The mother was instructed by the visiting nurse in general methods of nursing care, such as giving bed baths, taking rectal temperatures, and counting the pulse. The mother maintained a chart consisting of pulse and temperature records at four-hour intervals, daily sleeping pulse rate, and weekly weight, except for patients with congestive heart failure in whom daily weights were recorded.

Shortly after a child was admitted to the program the mother was asked to keep a detailed list of the child's food intake for a week. The dietitian evaluated the diet as to qualitative and quantitative adequacy, interviewed the mother, and suggested appropriate changes in keeping with the financial status of the family. The dietitian

Clinical End Results of Home Care Program

	Cardiac Status		Status of Rheumatic Fever at Discharge from Program	
	When Accepted	When Discharged	Inactive	Active
Group 1 asymptomatic rheumatic fever (20 patients)	13	13†	1† (Average of 13 mo on program)	4 (Average of 6 mo on program)
Organic heart disease				
Potential heart disease*	7	7		
Group 2 symptomatic rheumatic fever (11 patients)	10	10‡	10 (Average of 12 mo on program)	5 (Average of 17 mo on program)
Organic heart disease				
Potential heart disease*	5	5		
Group 3 rheumatic fever with congestive heart failure (10 patients)	10	10	4 (Average of 18 mo on program)	3 (Average of 11 mo on program§)
Organic heart disease				

* Nomenclature and Criteria for Diagnosis of Diseases of the Heart

New York Heart Association

† Increased murmur in 1 case

‡ Increased murmur in 2 cases

§ Three patients died after an average of three months on the program

made repeated visits to supervise the home diet. She was particularly helpful in outlining the low-salt diet when it was necessary and in demonstrating methods for increasing its palatability. In some cases exogenous obesity required the reduction of caloric intake. Supplementary vitamins were added to the diet of all the children. Routine monthly laboratory procedures included electrocardiogram, complete blood cell count and erythrocyte sedimentation rate, nose and throat cultures, and determination of antistreptolysin titer. Nose and throat cultures were also taken at frequent sporadic intervals. When respiratory infection was found, daily cultures were taken from the patient and also from the contacts when possible. A special laboratory for the grouping and typing of streptococci was set up in the hospital bacteriology department. Antistreptolysin titers also were determined oftener than once a month if hemolytic streptococci were found in nose and throat cultures.

The problem of the early recognition and treatment of respiratory infection presented a challenge. We were faced with two choices: either to administer penicillin to the child prophylactically or to investigate the possibility

that such infection, even in the home, could be readily recognized clinically and bacteriologically and then treated in a sane and practical fashion. The latter course seemed to offer an opportunity to gain important information. The mother was, therefore, informed of the potential seriousness of respiratory infection in the rheumatic child and was advised to call the physician immediately if the child contracted a cold or had a sudden rise in ordinarily stable temperature. Cooperation was amazingly good, and the results were excellent.

When respiratory infection developed, nose and throat cultures were taken, and then the child was given penicillin, one million units a day orally in four divided doses, as suggested by Massell, Dow, and Jones.² This therapy was continued until it was established by repeated cultures that the infection was not streptococcal. If group A beta-hemolytic streptococci were found in the culture, penicillin therapy was continued for 10 days. Repeated cultures were made to establish the disappearance of such organisms. Courses of penicillin were also given orally to persistent carriers of group A beta-hemolytic streptococci unrelated to clinical infection.

Necessary dental work was done in the home by a staff dentist, with adequate prophylactic penicillin therapy given under the supervision of the internists. When dental work was too extensive to be done at home, the child was hospitalized for a brief period and then returned to the home care program.

RESULTS

Over the 30 month period covered by the program, 45 children with chronic active rheumatic fever or in the later stages of an acute attack of the disease were treated at home. There were 32 boys and 13 girls from 4 to 19 years old, with an average age of 11.7 years. The patients remained on the program an average of 12 months, but the periods varied from 1 to 29 months.

Over the period of observation, the patients fell into three groups: (1) 20 patients with asymptomatic rheumatic fever (clinical and laboratory evidence of an active process without subjective complaints), (2) 15 patients with symptomatic rheumatic fever (acute joint manifestations, chorea, erythema marginatum, epistaxis, and supraventricular tachycardia), and (3) 10 patients with rheumatic fever and congestive heart failure.

The table summarizes the clinical end-results of the program. Six patients were transferred out of the program to a specialized institution for rheumatic fever patients and three to the care of private physicians. The disease was active in all at the time of transfer. These patients were not transferred from the program because the disease process itself was too severe or too difficult to handle at home but because the home situation had deteriorated in relation to the minimal criteria established.

Periods of hospitalization were necessary for 22 patients during the home care program. In group 1, there was one admission for each of the following reasons: severe respiratory infection, rectal bleeding, more effective bed rest, and because the family of the patient had moved out of the district covered by the home care program. In group 2, two admissions were for severe exacerbation of rheumatic fever (for adrenocortical therapy), one each for supraventricular tachycardia and severe epistaxis, and two for diagnostic reasons. Seven

admissions in group 3 were for intractable heart failure (two were hospitalized twice), one for auricular fibrillation, two for supraventricular tachycardia, and two for acute pericarditis

Aside from a few exceptions (the patients hospitalized or transferred from the program) patients in groups 1 and 2 presented no medical problems that could not be adequately handled at home. Bed rest was maintained until rheumatic activity had subsided, and then gradual ambulation was initiated. The joint manifestations responded adequately to moderate doses of salicylates. Chorea presented no unusual problems. There was no definite conclusion as to whether the home environment was beneficial or detrimental to the course of chorea, for only three such cases were observed.

Group 3, patients with active rheumatic fever and congestive heart failure, posed the most difficult problems in regard to adequate home care. A low-sodium diet was prescribed for all the patients, but it was difficult to induce the children to follow it. Lack of palatability was the chief reason, especially in regard to the reconstituted, salt-free milk powder, despite efforts to improve the taste. Digitalis was generally ineffective except in cases of auricular fibrillation. Use of mercurial diuretics frequently was necessary as determined primarily by the daily weight increase.

Despite the much greater risk of exposure to respiratory infection in these rheumatic children as compared to hospitalized rheumatic fever patients, the incidence of respiratory infection was surprisingly low. Approximately 40% of the children did not sustain any respiratory infection. In the early phases of this study, when a respiratory infection was recognized, nose and throat cultures were taken, and the patient was immediately placed on the daily dosage of one million units of penicillin administered orally. Cultures were taken daily until the absence of group A beta-hemolytic streptococci was demonstrated, then penicillin therapy was discontinued.

It soon became apparent that group A beta-hemolytic streptococcal infections occurred infrequently.³ Eventually, therefore, the administration of penicillin was limited to those patients with clinically severe respiratory infections that might conceivably have been of streptococcal origin. It was recognized, however, that the different types of nasopharyngeal infections could not be differentiated clinically. The monthly antistreptolysin titer determination was found to be a fairly reliable index to the presence of recent streptococcal infections. In two cases, throat cultures sporadically positive for group A beta-hemolytic streptococci without clinical evidence of respiratory infection were followed by a rise in titer. In one of these patients increased activation of the rheumatic fever was observed.

COMMENT

It is now apparent, after three years of observation, that cortisone-corticotropin therapy of both early, acute rheumatic fever and chronic, active rheumatic fever does not necessarily stop the active process or prevent the development of permanent cardiac involvement.⁴ The best therapy for the child with active rheumatic fever is, and probably will continue, for some time to be, a regimen of bed rest and guided mental and physical

activity. Our experience over a 30 month period appears to indicate that the majority of children can be cared for medically in the home throughout the various cycles and manifestations of rheumatic fever. With children who do not have congestive heart failure, there is little necessity for either initial hospitalization or transfer to the hospital for further definitive care.

A breakdown of the reasons for the 10 hospital admissions of nine children in groups 1 and 2 reveals that three patients were hospitalized for additional diagnostic procedures (one unrelated to rheumatic fever), four for treatment of an aspect of rheumatic fever better handled in the hospital at the time (one patient was twice hospitalized for treatment of supraventricular tachycardia), and three for miscellaneous reasons related primarily to the home situation.

Thus, in only five instances in these first two groups was hospitalization necessary because the phase of illness could be better handled in the hospital than in the home. Only twice was it considered necessary to hospitalize patients for closer observation and investigation than could be carried on in the home. Two of these 10 admissions were primarily for cortisone therapy. With our present knowledge of the use of this drug and its side-effects, these two patients could now be treated just as well at home as in the hospital.

Children with chronic active rheumatic fever and congestive heart failure are unquestionably difficult to handle at home. The severity of the disease, the greater nursing burden imposed on the mother, the constant medical attention required, and the resistance of children to the salt-free diet are the elements of the problem. Unless the period of congestive failure is short or easily controllable with the usual regimen, hospitalization becomes necessary at some phase of the illness. In fact, in our opinion, unless the usual therapeutic measures quickly relieve the failure, corticotropin therapy should definitely be instituted. There is a good possibility of clearing the congestive failure, although the rheumatic activity will not necessarily disappear. In congestive failure, hospitalization is indicated for hormonal therapy rather than its institution in the home.

The feasibility of maintaining a prolonged bed rest regimen for children cared for in the home has been questioned. In our program this was never a problem once the criteria established for home and parental suitability were fulfilled, and because of the continued stimulus to creative effort furnished by the occupational therapist and to educational achievement by the home teacher. There was one exception—a child had to be hospitalized for institution of a more satisfactorily restricted regimen.

Current belief as to the therapeutic value of a bed rest regimen during the active phase of rheumatic fever is that, by this means, the duration of the morbid process is shortened, and the degree of residual cardiac damage

3 Young D and Rodstein M. Unpublished data.

4 Barnes A R and others. Effect of Cortisone and Corticotropin (ACTH) on the Acute Phase of Rheumatic Fever. Further Observations. *A M A Arch Dis Child* 82:397 (Oct) 1951. Dorfman A and others. The Effect of Adrenocorticotrophic Hormone on Rheumatic Fever. *Pediatrics* 8:603 1951. Kuttner A G and others. Effect of ACTH and Cortisone on Rheumatic Carditis. Observations on Eighteen Cases. *J A M A* 148:628 (Feb 23) 1952. Young D and Rodstein M. Results of Cortisone-Corticotropin Therapy in Chronic Active Rheumatic Fever. *A M A Arch Int Med* 90:64 (July) 1952.

is kept to a minimum. A statistical evaluation of over-all results in regard to the time required to achieve quiescence of rheumatic activity and the degree of residual heart damage in this group of patients obviously cannot be made. We have concluded, however, that the end-results in those cared for totally at home were more favorable than results in similar patients hospitalized for the entire period of their illness.

Having accepted the restricted regimen for an indefinite period, where has the child ill with rheumatic fever preferred to spend his period of illness—in the home or in the hospital? Almost all of the children in this study had one or more prolonged periods of hospitalization either immediately prior to transfer to the program or within the year before they were first seen by us. In our experience the child and the parents have invariably preferred the period of prolonged care at home to that in the hospital. This is at complete variance with the recent report by Bauer.⁵

The argument that the possibility of hemolytic streptococcal respiratory infection is greater for the rheumatic child cared for at home than for the child in the more sheltered environment of the hospital is no longer valid. Our bacteriological and serologic studies of this group of children revealed an extremely low incidence of such streptococcal infections and of noninfected carriers in comparison with earlier studies.⁶ This low incidence and the expense and time involved make a continued bacteriological survey of all patients impractical. An equally effective and less costly method is the continued use of orally administered prophylactic penicillin in all patients cared for at home. The efficacy of this therapy has been well demonstrated.⁷

This was a pilot study purposely well provided with personnel and laboratory facilities, so that data on all

aspects of caring for the sick child at home could be obtained. A home care rheumatic fever program could be effective with a much simpler structure and with a minimum of laboratory services and professional personnel. The routine oral use of penicillin prophylactically would eliminate the necessity for elaborate and time-consuming bacteriological and serologic studies. Several functions could be performed by the same person. Minimal requirements recommended for such a program are personnel including an internist or pediatrician, visiting nurse, and a psychiatric social worker and laboratory facilities for basic hematological and bacteriological studies and electrocardiography.

SUMMARY AND CONCLUSIONS

The organization, medical management, and results of a 30 month pilot project for the complete care in the home of the child ill with chronic active rheumatic fever are described. Clinical conditions and social problems requiring termination of care at home and hospitalization are described. Results indicate that when certain initial criteria for home suitability are met, most children with active rheumatic fever and free of congestive heart failure can be cared for as well at home as in the hospital, with an equally good end-result and with greater over-all advantage to the patient and his family.

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5 Bauer I. L. Attitudes of Children with Rheumatic Fever. *J. Pediatr.* 40: 796, 1952.

6 Hare R. The Classification of Haemolytic Streptococci from the Nose and Throat of Normal Human Beings by Means of Precipitin and Biochemical Tests. *J. Path. & Bact.* 41: 499, 1935. Schwenker F. F. Survey of Hemolytic Streptococci in Certain Army Camps. *Army M. Bull.* 65: 94, 1943.

7 Massell B. F. Present Status of Penicillin Prophylaxis of Rheumatic Fever. *Mod. Concepts Cardiovas. Dis.* 20: 108, 1951.

PHILADELPHIA PLAN FOR HOME CARE OF CHRONICALLY ILL PERSONS

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A home care program differing in concept and method from others more generally known has been in operation in a section of Philadelphia since 1949, under the aegis of the Visiting Nurse Society of Philadelphia. This program, officially known as the Intensive Home Care Plan for the Chronically Ill, is based on medical care rendered by the family physician practicing in the community, in contrast to plans in which medical care is given by staff physicians of the hospital from which the patient has been discharged. The purpose of the plan is to give the chronically ill, home-bound patient better and more complete medical care in his own home, using the team co-operation approach and always keeping him under the direct supervision of his private physician. It was designed to permit the participating hospitals to use their beds to better advantage by the discharge of patients who no longer need specialized hospital care and who can, therefore, be sent home, provided the necessary equipment, personnel, and supervision are available. We be-

lieved that our plan would reduce the incidence of re-hospitalization among patients referred to us by the participating hospitals. The plan was set up also to improve medical and social care of persons who have been home-bound for long periods, who may or may not have been previously hospitalized, and who probably sometimes feel deserted. We believe that our plan would reduce the number of initial hospitalizations among this group.

Many home care plans have been established under the direct supervision of the institution sponsoring them and have been considered to be extramural functions of those institutions. The patient remains under direct care of the hospital, and the private physician has no voice in the further management of the case. That all these plans have been successful has been fairly well established. The cost of the care of the patient at home by the hospital is generally stated to be about one-fourth the cost of caring for that patient in the hospital. The important considerations are that the patient continue to receive good care at home and that, thus, the number of hospital readmissions

is reduced. Many patients who do poorly in the hospital do much better in their home surroundings, eating the food that suits their palate, seeing their friends at any time, and being with their loved ones.

In our plan, in contrast to other plans, the patient must always remain under the direct supervision of his personal physician, whose orders we follow. Nothing is done without orders from the patient's physician. Patients may be referred by private physicians or hospitals. The hospitals must make certain that the referred patient has a physician responsible for him at home, either his own or one appointed by the institution. Patients requiring an appointed physician are usually those who have no private physician because they are unable to afford one. Since an adequate physician-patient relationship is a necessity for the success of our plan, it was decided early that, to maintain this important relationship, we would, when circumstances demanded, pay the physician's fees, using the Pennsylvania Department of Public Assistance fee schedules as a basis. Thus, our indigent patients would not have to worry about the "doctor bills," and physicians would not have to curtail medical supervision because of economic considerations.

Ideal home conditions do not enter the decision to accept a patient into our plan. Although we certainly prefer such conditions, many patients have been accepted whose home conditions were rather poor. The hospitals in the area have no direct voice in the administration of the plan. In addition to their arrangement for physicians to be responsible for their referred patients, they are asked to provide social appraisals of these patients. We proceed from that point. The hospitals are asked to provide necessary laboratory and x-ray services for all patients when these services are otherwise unobtainable, for which they are paid by the patient or by our plan. They also are asked to supply medical and surgical consultants on a clinic basis and to hospitalize and rehospitalize patients when necessary. It is most gratifying that all of the hospitals in the area are cooperating very well.

The plan provides the following services in the patient's home, always under the direction of the patient's own physician and under the supervision of a nurse coordinator, who is a member of the Visiting Nurse Society staff:

- Part time nursing service
- Physiotherapy
- Occupational therapy
- Part time housekeeping service
- Nutrition consultation
- Mental hygiene consultation
- Social service consultation through existing agencies
- Laboratory service
- X ray service at hospital x ray departments
- Medical and surgical consultation service at hospital clinics
- Transportation to and from hospitals and clinics
- Speech therapy
- Education consultation
- Surgical appliances such as braces shoes and corsets
- Home medical equipment such as beds walkers and bedpans
- Medical supplies such as bandages and medicine
- Friendly visitors

Our permanent staff consists of a part-time medical director, a full-time coordinator, and a part-time secretary. Whenever possible we have used existing staffs for

direct services, thus nursing services, physical therapy, and occupational therapy have been supplied by the two cooperating agencies, namely, the Visiting Nurse Society and the Starr Centre Association, while social case work is provided by the social service departments of the cooperating hospitals and the community social service agencies.

OPERATION OF THE PLAN

The physician in charge of the patient is asked to fill out a referral form giving the pertinent medical information about the patient and prescribing the treatment, such as nursing, administration of medicine, physiotherapy, occupational therapy if desired, and diet. This referral form is kept as simple as possible. After studying this information, the medical director of the plan visits the home to evaluate the situation and to become acquainted with the patient and his family. Meanwhile, the patient and the home have been visited by a nurse or the coordinator, who ascertains home conditions, explains the plan to the family and patient, determines what costs, if any, the family can bear, and decides what home equipment is needed and whether part-time housekeeping is required. Social service consultation follows if needed. A decision is then made by the coordinator and the medical director as to the acceptability of the patient, and the referring physician is called to inform him of the decision and to discuss any problems. We have not knowingly accepted psychiatric patients or patients with communicable diseases.

The physician is asked to give a monthly report on the patient's progress, indicating any change in treatment or diagnosis, making use of a simple form that is mailed to him with a self-addressed stamped return envelope. The physician in turn receives a monthly report of what has been done for the patient. The cooperation of the physicians has been good. The nurse in charge of the patient contacts the physician whenever an immediate problem arises. Periodically, problem patients are discussed at evaluation conferences, at which time all persons working with the patient are asked to be present. We have tried to have the physician in charge of the patient present at the conferences but so far have succeeded in getting only a few to come. We believe these conferences have a great potential value to all personnel involved at the postgraduate level of education. The physicians are especially benefited by learning the scope of ancillary medical services available to their patients. These conferences show to all the method and results of the team approach to the care of chronically ill persons.

RESULTS OF PROGRAM AND SERVICES RENDERED

After approval by the Philadelphia County Medical Society in March, 1949, the first patient was accepted in April. On July 31, 1952, after three and a fourth years of operation, 160 patients had been accepted, 84 were discharged, 36 died, and 40 are still being cared for. An analysis of the 84 patients who have been discharged reveals the following facts: 8 patients returned to school or work, 41 were able to resume most of their activities of daily living, 11 were discharged because their families were able to take over complete care guided by pro-

set up by our plan, 5 were returned to the regular Visiting Nurse Service, since they required only one service and, therefore, did not need a coordinated program, 6 were discharged because they or their families were indifferent, 1 was discharged because his physician was indifferent toward our efforts. The last patient was discharged to the regular Visiting Nurse Service so that he would not be left without care.

An analysis of the sources of patient referrals showed that 42 patients were referred by local cooperating hospitals, and 118 were referred directly by private physicians. These latter 118 patients were referred by 90 physicians as follows: 69 physicians referred one patient each, 18 referred two patients each, 1 referred three patients, 1 referred four patients, and 1 referred six patients.

Many of the private physician referrals were stimulated by the alertness of the Visiting Nurse Society and Starr Centre Association nurses, who, on answering routine nursing calls, found chronically ill patients, many of them aged, who required coordinated home care. These nurses would then acquaint either our coordinator or our medical director with the problem, then one of our staff would explain our services to the physician and the family. Most of the physicians and families were convinced about the worth of the service and made application for care. It is gratifying to note that a certain number of physicians who were originally approached in this manner are now directly applying for aid for their chronically ill, home-bound patients.

The age distribution of the patients accepted as of July 31, 1952, is shown in the following tabulation:

Under 30	9 (6.1%)
30-39	11 (6.9%)
40-49	16 (10%)
50-59	31 (19%)
60-69	36 (22.6%)
70-79	40 (25%)
Over 80	17 (10.6%)

Thus 93 (58.1%) of our patients were 60 years of age or older. The primary diagnoses among these 160 patients were as follows: cerebral vascular accidents 48, malignant disease 24, circulatory system diseases 19, arthritis 20, fractures 20, nervous system diseases 14, diabetes 9, bone diseases 2, nonmalignant tumors 2, and muscular dystrophies 2.

The services rendered and the number of patients receiving the services were as follows: nursing service 133, physiotherapy 116, occupational therapy 101, part-time housekeeping 41, nutrition consultation 22, mental hygiene consultation 40, social service consultation 75, x-ray service 4, laboratory service 4, medical consultation at hospital clinics 7, transportation to and from hospitals and clinics 8, speech therapy 7, education consultation 5, surgical appliances, such as braces, shoes, and corsets, 1; medical supplies, such as bandages and medicine, 4; 1; such as beds, walkers, and bedpans, 1; and physician's bills paid by the plan, \$100, 4. The number of the various services rendered to the various

tor's visits 332, personal physicians' visits 1,503, clinic visits 47, medical-director's visits 214, nursing visits 4,546, physical therapy visits 2,664, occupational therapy visits 1,209, speech therapy visits 170, nutrition conferences 17, mental hygiene conferences 32, miscellaneous conferences, including social service conferences, 196. No accurate data on the amount of housekeeping done is available, since many patients made their own arrangements with housekeepers whom we suggested. Fifteen patients were readmitted to the hospital while receiving care under the plan.

As stated, our current case load is 40 patients, our maximum has been 43. The total number of patient days spent has been 29,443. The experience in this plan seems to follow the general experience in the Visiting Nurse Society in that about 50% of the nursing, physical therapy, and occupational therapy service is fully paid for by the patient. The plan has cost the community about \$2.60 per patient day. This cost per patient day was computed without deducting fees paid by patients who were financially able to pay them for nursing care, physical therapy, occupational therapy, and other services.

COMMENT

The cooperating hospitals have responded favorably to this plan, even though more referrals from them would be desirable. These hospitals are the Germantown Hospital, Chestnut Hill Hospital, the Hospital of the Woman's Medical College of Pennsylvania, Albert Einstein Medical Center (North), and the Memorial Hospital of Roxborough. Germantown Hospital has estimated that the plan saved the hospital about 500 hospital patient days from April 1, 1949, to Jan. 24, 1951. The number of referrals from the hospitals varies directly with their awareness of the plan and the interest of their social service departments.

Sometimes the hospitals have delayed in referring patients because of delay in finding a physician who would assume responsibility for the patient. This has not proved to be too great a problem. One hospital has solved it by supporting by a fellowship a part-time physician who is responsible for indigent home-bound cancer patients who have no private physician. Since this physician is acting as the patient's private physician, our requirement that each patient have his own physician is fulfilled. The hospitals have expressed disappointment in being unable to refer patients whose residence is outside the boundaries set up for the plan. In the not too distant future, this problem will be partly solved by extension of our geographical boundaries.

Most of the physicians have been enthusiastic about our plan. Several were dubious at first, and a few turned down the plan, claiming that nothing could be done for their patients or that they did not wish to put their patients to the added expense. Some of these physicians were persuaded to try the plan after being informed that they would have absolute control of the patient and that the matter of expense would not enter into our decision to admit the patient to our plan. These same physicians

soon discovered that we made it possible for them to care for their patients more adequately and with much less effort on their part

How has this plan affected the interest of the physician in his patient? Does it increase or decrease? Unquestionably, I believe it increases in most instances. The physician becomes more cognizant of the beneficial effects on his patient of the cooperation of a team of workers in the patient's care. This team of workers must include the physician as the keystone of the group. He soon realizes this and before long, either consciously or otherwise, is himself taking greater interest in his patient. Thus, I believe the plan has been a driving force in educating the private physician to the potentialities of teamwork in home care.

The nurses and other workers in the plan have benefited, too. Their interest and efficiency in caring for these patients have increased tremendously. This, I believe, and our staff agrees, is due to the team approach of caring for chronically ill patients. We believe that the total amount of nursing services for many patients has been cut down as compared to the amount required by similar patients under the care of the Visiting Nurse Society before the Intensive Home Care Plan was started. Many hemiplegic patients who received custodial care at home instead of coordinated care had to be visited by nurses for longer periods than those receiving care under the Intensive Home Care Plan. The latter patients were able to be cared for by their families or by themselves sooner than the former patients.

What has been the reaction of the patients and their families? Almost all hospitalized patients want to return home as soon as possible, and they are most grateful when they can get home sooner than would otherwise be possible. Many patients who are sullen and rebellious in the hospital become happy and cooperative at home. Many patients who have been home for a long time, bed-fast or partially helpless, feel they are being forgotten and have nothing to look forward to. These patients, I believe, have received a tremendous benefit and uplift as a result of our plan. This benefit cannot be measured in units, but all our staff agree that it is real and worth while. The fact that persons come in to give them care and that these persons show interest in them and teach them something raises them from despondency. The well members of the families also find a new lease on life. Whereas before they did not know where to get help, they now receive support from our plan in housekeeping, advice and knowledge of how to handle and care for the patient. Above all, when they see the sick one a little more contented and pleased, they also feel pleased. At first, some families were anxious to place their patients in nursing homes or similar institutions. After interviewing these families, it was realized that they actually were afraid to keep the patients home, because they did not know how to take care of them. With education and advice and having some extra equipment in the home, some families were soon happy to keep their sick member at home.

SUMMARY AND CONCLUSIONS

The experiment described was developed in response to organized community demand to determine whether medical and supportive services for chronically ill patients in their own homes and under the care of their own visiting physicians, when developed in a coordinated manner, would lead to maximum improvement physically, emotionally, or socially, at less expense than that of hospital or institutional care. Under this program, in operation for three and one-quarter years in one section of a large eastern city, 160 patients have been cared for. Services have been offered on a visiting basis at a frequency determined by the individual need and have been coordinated by a community public health nursing association. The team approach has been used throughout, with careful admission review and regular progress conferences. Referrals have come from all hospitals and a large number of private physicians in the area. Review of the progress made by patients with a wide variety of conditions and observation of the favorable changes in family life suggest this program as one approach to the problem of care for persons with chronic illness who wish to remain at home. In our experience, those who display readiness to cooperate in intensive care show improvement physically, emotionally, or socially in situations formerly believed static or hopeless. Consideration of the organization pattern, the interagency, physician-agency, and physician-patient relationships, and the expenses involved in promotion and operation lead to the conclusion that such a plan can be repeated in a wide variety of communities.

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Trial Forceps—Midpelvic arrest may be due to a variety of causes bony disproportion being only one, and many of these are correctable, after which vaginal delivery is easy and safe. Therefore it would be poor obstetrics indeed to say that every patient with midpelvic arrest must be delivered abdominally or that all must be delivered from below. From the literature and from personal conversation and communication it is quite apparent that many outstanding obstetricians are practicing trial forceps today. This study has convinced us that the midforceps operation, when always carried to conclusion, may be a very dangerous one for the infant, ranking second only to internal podalic version and breech extraction. On the other hand, many of these cases of midpelvic arrest may be capable of successful delivery with gentle traction and with a minimum of risk. If these gentle efforts fail, all attempts at vaginal delivery should be discontinued and resort had to the abdominal route. This does not appear to increase the risk to the mother while it is definitely less hazardous for the baby. It is true that the section rate may be slightly increased in theory, but it is doubtful if this will prove true in actual practice, for a certain number of patients delivered abdominally without trial forceps would be found to have easy vaginal deliveries when the attempt is made.

It should be emphasized that "trial forceps" is a method of delivery which should be undertaken only by a skilled obstetrician, and not by the general practitioner who has had no specialty training. This is also true of many obstetrical operations, not the least of which is a midforceps delivery itself. It is felt that this fact should not prevent its recommendation or its use.—L. H. Douglass, M.D., and D. F. Kaltreider, M.D., *Trial Forceps*, *American Journal of Obstetrics and Gynecology*, April, 1953.

REDUCTION IN OPERATIVE MORTALITY IN THE VERY AGED

Sidney E. Ziffren, M D, Iowa City

Most physicians are aware of the tremendous rise in the number of aged persons in our population, but few are aware of the magnitude of that increase. Since the first part of the 20th century the number of persons 65 years of age and older in the United States has quadrupled, while the general population has only doubled. There are 12,269,537 men and women 65 years of age and over in our population today. Of this number it has been estimated that 1,670,000 or approximately 13.6% of this age group are 80 years of age and over. The improvement in life expectancy has been greatest at birth and decreases markedly thereafter, so that today the actual life span at the age of 80 is not much longer than it was in 1900. More persons survive to an older age than before, but, having reached this age, they do not survive longer than did the aged in 1900. For instance, in 1900 the life expectancy at the age of 80 was 5.1 years. At present it is 5.4 years. On the basis of a projection from census figures it is estimated that in 1960 there will be about 15,570,000 persons in the age group of 65 years and over, and approximately 13.8% of this group, an estimated 2,175,000 persons,¹ will be 80 years of age and over. Even with this outlook, however, the complete expectation of life of the white male, as extracted from the United States life and actuarial tables of 1939 to 1941,² is a remarkable number of years if he reaches extreme old age (fig. 1). This is the average number of years lived after a specified age if the person survives to that age. A person who survives to the age of 80 will have a life expectancy of 5.44 years, which falls to 4.11 years at the age of 85, to 3.17 years at the age of 90, and to 2.52 years at the age of 95.

In consideration of these facts, therefore, necessary surgery should not be withheld from elderly persons because of old age. It is the purpose of this paper to show that age per se is not a contraindication to necessary surgery. A review of the patients 80 years old and over who were treated surgically at the University Hospitals of the State University of Iowa during the 10 year period, 1942 to 1951 inclusive, forms a major portion of this report. These patients were cared for on the general surgery service exclusively, auxiliary services such as urology and orthopedics are not included.

STATISTICAL RESULTS OF SURGERY

In this series there were 429 patients, 16 of whom were 90 years of age or over. The age distribution was as follows: 80 to 84 years, 306 patients; 85 to 90 years, 107

patients, 90 years and over, 16 patients. There were 265 men and 164 women. A total of 478 operations were performed on this group, with an over-all mortality of 65 deaths (15.1%). If the mortality is calculated on the total number of operative procedures performed rather than upon the number of patients, the mortality is 13.5%. Forty-one patients had multiple operations, and in this group there were only four deaths, a mortality rate of 9.7%. The commonest causes of death were bronchopneumonia, pulmonary embolus, cardiac failure, metastatic carcinoma, and peritonitis. In practically all instances general anesthesia was given, sometimes supplemented with local anesthesia. In only a few instances was spinal anesthesia used. A wide variety of surgical procedures were performed on the group. The marked increase in the number of patients 80 years old or over during this 10 year period is evident in figure 2. In 1942 only 15 patients were admitted for operative procedures at the age of 80 or over, and in 1951 79 patients were admitted. It is interesting to note that the surgical procedures performed in 1951 were of far greater magnitude than those performed in 1942 and included neck dissection, bowel resections, gastric resections, and radical mastectomies. The decrease in the mortality rate is also apparent. In 1942 it was 13.3%, in 1943, 18.6%, in 1944, 30.0%, in 1945, 35.8%, in 1946, 16.6%, in 1947, 13.8%, in 1948, 15.3%, in 1949, 6.5%, in 1950, 7.4%, and in 1951, 11.3%. In 1951 two patients with generalized peritonitis from perforation of the colon proximal to a malignant lesion with obstruction were operated on as a last resort. The chances of recovery were very slight because of the nature and duration of the peritonitis. If these two patients had not been operated on, the mortality rate in 1951 would have been 8.8%. The surgery was performed by both surgical residents and staff physicians. It is evident from this series that operative techniques had very little influence on the reduction in operative mortality. The most important factors were preoperative and postoperative care and the availability of antibiotic drugs.

PREOPERATIVE AND POSTOPERATIVE CARE

If there is no emergency, time must be taken to ensure that the blood volume and protein reserves of the patient are adequate and that he is properly hydrated. It is easy to be misled by a presumably normal hemoglobin level and red blood cell count in the elderly patient, this may lead to a false sense of security. It has been demonstrated that practically all elderly surgical patients have a significant deficiency in blood volume.³ The possibility of shock during surgery is very much greater in the aged person with a low blood volume. If any major surgical procedure is contemplated, transfusions must be considered a necessary part of the preoperative preparation of the patient.

The elderly patient is very likely to have nutritional deficiencies, especially if he has a condition requiring surgery. Consequently, a nutritious diet, rich in protein,

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must be provided and often must be individualized to encourage the patient to eat. It is supplemented with vitamins given orally and sometimes, parenterally. The patient is often provided with whiskey to increase his appetite, if he still does not have an adequate food intake, a supplementary formula feeding of high protein and caloric value is given. The simple formula used is 30 gm of skim milk powder (approximately 3 full tablespoons) dissolved in a glass of skim milk. This provides 18 gm of protein and 26 gm of carbohydrate. The mixture is

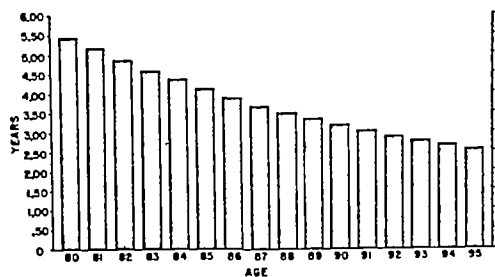


Fig 1.—Life expectancy of persons 80 to 95 years old among the general population

flavored with chocolate or vanilla and is well mixed in a food blender or beater. If the patient does not take the formula feedings voluntarily, an indwelling polyethylene gastric tube is used. The improvement in the mental attitude of many patients after several days of adequate nutrition is often remarkable.

In some instances it is impossible to feed the patient by mouth, which, of course, is the most suitable method of providing the nutritional requirements. Parenteral feedings by the intravenous route can be used, but the fluid must be administered slowly to avoid overloading of the circulation. The water requirement can be easily met, and a major portion of the caloric needs can be supplied by use of the protein hydrolysates. Alcohol is usually added to these solutions to provide additional calories. The loss of the patient's protein reserve can be reduced to a minimum in this fashion. Subcutaneous feedings also may be utilized. The use of hypodermoclysis may be dangerous, however, especially in a patient who is suffering from dehydration, salt deficiency, or shock.⁴ Ordinarily, the subfascial injection of isotonic saline is safe, but injection of a solution without electrolytes, such as 5% glucose in water, or of hypertonic solutions without inorganic electrolytes may cause oliguria, anuria, or circulatory collapse. The latter two types of fluid must first come into equilibrium with the plasma to be absorbed, and thus, withdraw fluid from the plasma and interstitial fluid compartments. In the aged this is especially dangerous, because the physiological reserve is low. The use of hyaluronidase, which causes the solution to diffuse over a greater area, and thus possibly increases the amount injected, might very well intensify this dangerous reaction. The intravenous route seems to be the safest means of parenteral fluid introduction.

The one factor that has considerably reduced the mortality in these elderly patients has been the marked restriction of salt and fluids administered parenterally. This restriction was inaugurated in 1949 after results of surgery in this age group were reviewed.⁵ A marked fall in the mortality rate resulted. The maximal amount of salt

permitted daily is 5 gm unless replacement of a definite sodium chloride loss is necessary. It has been found that if salt and fluid are not restricted, edema may develop rapidly and unexpectedly, this may result in a markedly increased susceptibility of the patient to pulmonary and cardiac complications. In addition, it has been noted that patients in this age group rarely require more than 1,800 ml of fluid a day. The intravenous administration of more than 2,000 ml daily may prove extremely hazardous unless the patient is definitely dehydrated. It is likely that the very elderly person has a much lower metabolism and eliminates much less waste in his urine than does a younger person and, consequently, requires much less fluid daily.

The patient is not permitted to remain recumbent constantly. He is urged to go to the bathroom and to walk about the ward freely. The cardiac and kidney status must be evaluated, and, if necessary, digitalization is accomplished. If azotemia is present, it should be treated prior to surgery.

Even in an acute emergency, time must be taken to overcome dehydration and shock preoperatively, because the aged patient is much more susceptible to blood volume loss from dehydration and shock than is a younger person. His vasomotor system is far less capable of compensating, and the heart is unable to increase its rate and output. If this is not done it can be expected that the patient will die on the operating table or shortly thereafter. If the patient is severely dehydrated a relatively rapid rate of fluid administration by intravenous means is not harmful, because this fluid will be utilized rapidly. As a general rule the first 1,500 ml of fluid can be introduced at the same rate that would be used for a younger person. After that quantity has been administered the patient usually begins to excrete urine, and the rate of intravenous flow can then be adjusted not to exceed 500 ml an hour.

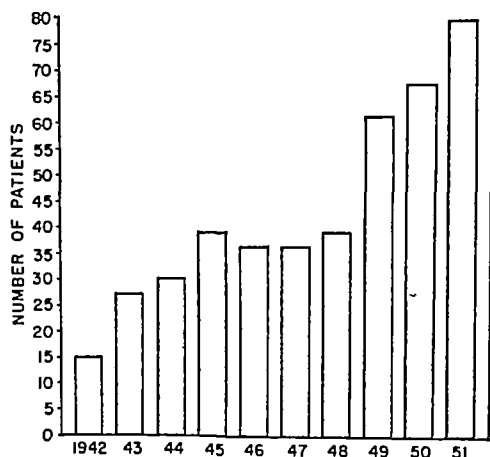


Fig 2.—Increase in number of surgical patients 80 years old and over in the series reported from 1942 to 1951 inclusive

There is no single ideal anesthetic agent, either general or local, for the aged patient. The same fundamentals that govern the choice of anesthetic agent in the young apply to the aged. The agent chosen should provide the

4 Abbott, W E and others. The Danger of Administering Parenteral Fluids by Hypodermoclysis. *Surgery* 32: 305-315 (Aug) 1952.

5 Ziffren S E, Zager I L, and Cullen S C. Hazards of Surgery Beyond the Age of Eighty. *Geriatrics* 5: 252-258 (Sept-Oct) 1950.

desired depth of anesthesia with minimal derangement of the physiological processes of the patient. Wide swings in the depth of anesthesia and prolonged deep anesthesia should not be permitted. At all costs abnormally low blood pressure must be avoided, less concern is felt about abnormally high pressures. The oxygenation of the heart and cerebrum is of paramount importance.

During the postoperative period every effort must be made to have these patients out of bed and in a chair on the day of operation and several times daily thereafter. They must be turned frequently and given a minimum of sedation. Morphine or meperidine (Demerol) hydrochloride in small quantities may be used for severe pain, but it is not too unusual to see wide hallucinatory side-effects such as are commonly seen with the barbiturates, even when the drugs are given in very small quantities. Intercostal nerve block instead of analgesic drugs for relief of upper abdominal or thoracic pain often proves very satisfactory.

If a Levin tube is used in the stomach for gastric suction it should be removed as soon as possible. The tube inhibits coughing, increases the amount of mucous secretion, which may lead to atelectasis and subsequent pneumonia, and not infrequently produces ulceration of the pharynx and esophagus, which interferes with the early resumption of oral feeding. An even greater problem produced by the tube is an upset of electrolyte balance, which may be difficult to control, over a prolonged period the loss of potassium may in turn lead to a vicious circle of prolongation of the intestinal ileus for which the gastric suction was primarily used. It is not unusual, however, to find that resumption of normal peristalsis in the aged after an abdominal operation is very slow or, if it does resume early, that the peristalsis is only segmental, and the abdomen becomes distended on withdrawal of the Levin tube. This condition is often incorrectly diagnosed as a mechanical intestinal obstruction. Actually, the patient has not regained bowel tone throughout the intestinal tract, but only in segments of bowel. Within a short time peristalsis returns to normal.

Oral feeding is encouraged as soon as possible, and again, every effort is made to keep the parenteral salt intake at a minimum to prevent edema and its inevitable fatal complications. If the patient has required constant gastric suction for a prolonged period, the possibility of potassium deficiency must be considered. Parenteral administration of potassium can be used in the extremely aged only if the patient is excreting an adequate quantity of urine. Heart block due to myocardial disease is always a possibility in the aged and should be considered prior to the parenteral administration of potassium. In such cases the fluid containing the potassium must be administered very slowly. If the patient can take fluids by mouth, potassium deficit is no problem, inasmuch as it is easily corrected by an ordinary diet rich in bouillon broth and fresh fruit juice.

Hypotension, with its dangers of thrombosis and irreversible shock, is avoided at all costs. This necessarily requires frequent checks on blood pressure and pulse rate during the immediate postoperative period. Penicillin is given routinely to prevent infective pulmonary complications. It is well to remember, however, that pulmonary complications ordinarily are preceded by

edema, which can usually be prevented by restricting the salt intake and by not overloading the circulation with large quantities of intravenous fluids.

COMMENT

From the results obtained in this series it appears that necessary operative procedures should not be withheld from patients in the advanced age group. If reasonable attention is given to details, good results can be expected. In consideration of the fact that a person 80 years old has almost 6 years of life expectancy and at 90 has over 3 years, every effort must be made to treat patients in this extreme age group, they should not be permitted to die simply because they are believed to be too old to withstand surgery. The fall in mortality rate in the series, from a high of 35.8% to the astonishingly low figure of approximately 11% within a short span of 6 years, demonstrates what can be accomplished in the management of these elderly persons.

This, however, should not permit us to grow careless in the handling of the aged surgical patient. Elective surgery should be undertaken only with the greatest hesitation. Postponement of surgery until the patient is in optimal condition, especially from the standpoint of blood volume and nutrition, is important, and avoidance of circulatory embarrassment through overloading with salt and water must be kept constantly in mind. The staging of operations must also be considered, for, as demonstrated in the mortality statistics, repeated small procedures are better tolerated by very feeble persons than is one large procedure. The use of antibiotics has undoubtedly contributed to a lowering of the operative mortality, but not overwhelmingly, for the drugs were used during practically the entire period of this study.

SUMMARY

Surgical procedures carried out on patients 80 years of age and over during a 10 year period, 1942 to 1951, inclusive, have been reviewed. The over-all mortality was 15.1%. During the years studied, in spite of a more than fivefold increase in the number of surgical procedures performed, the mortality rate has dropped to 11.3%. Age alone is not a contraindication to necessary surgery. The factors contributing chiefly to the lowering of the mortality rate are the preoperative preparation and postoperative care of the patient in regard to nutrition, blood volume, salt and water intake, and the use of the antibiotics.

Adenocarcinoma of the Uterine Corpus—In our series, carcinoma of the corpus constituted 32.2% of uterine malignancy and 23.4% of total female reproductive tract malignancy. Carcinoma of the corpus is primarily a disease of the early postmenopausal period, although 20 to 30% of the cases occur before the menopause. Seventy-five per cent of the cases occur after the age of 50. The highest incidence of carcinoma of the corpus occurs in the sixth decade. The average age varies from 50 to 58 years. Age is a distinct factor in the ratio of carcinoma of the corpus to carcinoma of the cervix, and the relatively increased incidence of corpus carcinoma cited above may be associated with the aging of our population. Under 35 years of age, corpus carcinoma constitutes 3% of uterine malignancy. This ratio gradually increases with age. In the sixth decade approximately 37% of uterine cancer is due to corpus carcinoma and in the seventh decade this ratio increases to 44%. —C. P. McCartney, M.D., *Adenocarcinoma of the Uterine Corpus*, *Surgical Clinics of North America*, February, 1953.

BRONCHOSTENOSIS COMPLICATING ASTHMA

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and

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Benign nontuberculous bronchostenosis is a complication of either intrinsic or extrinsic asthma that too often is unrecognized. By bronchostenosis is meant a definite stricture-like narrowing of a bronchus that is considered to be inflammatory in nature and not the result of allergic edema or spasm. In 1939, two of us (L E P and H J M)¹ described the symptoms, physical findings, and the laboratory information that characterize bronchostenosis in asthma, and, in 1940,² we reviewed our experience at the Mayo Clinic with 140 patients with asthma who had been especially selected for bronchoscopic examination. Of this series, 60 patients were found to have definite stenosis of one or more bronchi. Subsequently, others³ have reported their experiences with this complication of asthma.

Recently we reviewed the records of 1,034 consecutive asthmatic patients who underwent bronchoscopic examination during the decade ending in 1950. Of these, 327 were found to have stenosis of one or more bronchi. There were 182 female and 145 male patients in this series. All age groups were represented, the youngest patient being 3 years of age and the oldest 74 (fig 1). The largest number of cases in any decade of life were found in the age group 40 to 49 years inclusive, however, in the decades preceding and following this one many cases were seen.

SYMPTOMS

The syndrome of bronchostenosis complicating asthma is a rather definite one and will be reviewed in some detail. The most prominent symptom is cough, which is usually persistent and at times paroxysmal. This, of course, aggravates the patient's asthma. The cough is usually productive of sputum, which varies in amount and character. During the period when a bronchus is stenosed, there is retention of secretions distal to the point of obstruction of the bronchus, and sputum may be absent or scanty. A localized obstructive pneumonitis develops and persists until this site is drained, either spontaneously or by bronchoscopic dilatation and aspiration of the retained secretions. Such secretions are mucopurulent, and after bronchoscopy they may drain in considerable quantity. Thus, it is not unusual for the cough to be nonproductive during an episode of bronchostenosis. The paroxysms of coughing are the patient's involuntary effort to overcome the stenosis and raise the retained secretions.

The second commonest symptom noted in our patients was fever, and the fever was occasionally accompanied by chills. Fifty-nine per cent of the patients gave a history of fever with their attacks. The fever was usually moderate and lasted from a few to many days. Often, as the febrile episode subsided, the cough became productive of increasing amounts of yellow or greenish sputum. The fever may be explained as resulting from the retention of secretions and from the inflammatory reaction in the adjacent lung. Fever was usually accompanied by leukocytosis.

Hemoptysis was noted in 35% of the patients reviewed and is an important symptom. Hemoptysis does not oc-

cur in uncomplicated asthma, and the source or cause must always be searched for. Bronchoscopy should always be carried out if no obvious cause for hemoptysis is found. The source of the blood-tinged sputum in bronchostenosis is thought to be the site of inflammation of the bronchus distal to the site of stenosis. A good rule to remember is that uncomplicated asthma is not associated with fever, purulent sputum, or hemoptysis.

Also worthy of note is the fact that 50% of the patients in this series gave a history of an infection of the upper respiratory tract preceding the attack. This was usually described by the patient as a "cold." A history of one or more episodes of pneumonia was obtained in 43% of the patients. A positive history of pleurisy on the affected side was obtained in 32%. Bronchostenosis is often mistaken for pneumonia because of the severity of the cough, the fever, blood-tinged sputum, physical findings, and roentgenologic evidence of localized pneumonitis or atelectasis. Many patients had a history of repeated febrile attacks that were described as "flu." It should be axiomatic, therefore, that a patient who has asthma and experiences one attack or repeated attacks of pneumonia, pleurisy, or influenza certainly must be suspected of having had bronchostenosis until the nature of the illness is proved otherwise. This is true of children as well as of adults.

PHYSICAL FINDINGS

The physical examination of persons having asthma complicated by bronchostenosis may disclose no abnormal findings other than the usual asthmatic rales, however, additional abnormal findings were present in 39% of the patients in our series. When a large bronchus is obstructed, either emphysema (ball-valve action) or, more often, obstructive pneumonitis occurs in that portion of the lung distal to the point of obstruction.⁴ It should be emphasized that any obstructive bronchial lesion, for example, a foreign body or malignant growth, may produce asthma-like wheezing and dyspnea. This is an important consideration in the differential diagnosis of asthma, recalling the aphorism of Jackson that "all is not asthma that wheezes."

It is evident, therefore, that the physical findings in cases of bronchostenosis will vary. If abnormal findings are encountered, they will usually be those of obstructive

Read at the Sixth Clinical Session of the American Medical Association, Denver, Dec 3, 1952.

Fellow in Surgery, Mayo Foundation (Dr Mears) and from the Division of Medicine, Mayo Clinic (Drs Prickman and Moersch).

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4. Schmidt H W. Benign Nontuberculous Bronchial Stenosis. *Arch Otolaryng* 39: 43-52 (Jan) 1944.

pneumonitis. The breath sounds in such cases are suppressed, and tactile fremitus is also suppressed over the affected site. Less frequently, there may be dullness to percussion over the affected part and a respiratory lag, with diminished excursion of the thorax, on the affected side. Careful and repeated examination of the asthmatic

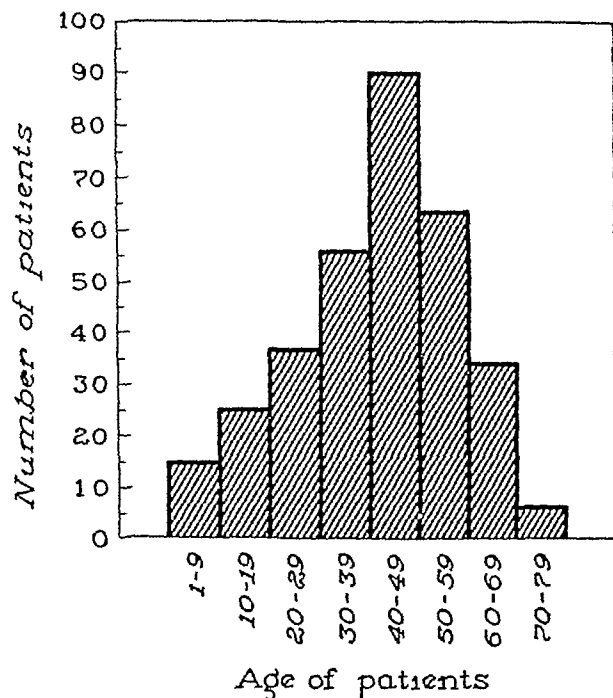


Fig. 1—Distribution of patients with bronchostenosis complicating asthma according to age

thorax should be made, because there will often be definite if not pronounced differences in the physical findings between the involved region in one lung and the corresponding uninvolved region in the opposite lung. Reexamination of the thorax after the patient coughs as well as reexamination on a subsequent day is important, because the occlusive signs may be due to a plug of mucus or a bronchial cast that is temporarily blocking a bronchus, in which case, on subsequent examination, these signs may have entirely disappeared. The presence of persistent and unilateral abnormal physical findings are of utmost importance, because in uncomplicated asthma the physical findings are similar in the two lungs. These positive findings will usually be present over the posterior part of the lower lobes, however, in five patients in our series, the obstruction proved to be in a bronchus of an upper lobe.

ROENTGENOLOGIC EVIDENCE

Because of the low incidence of positive roentgenologic evidence in the cases reviewed, we place more emphasis on the history and physical findings. In only 30% of the cases were the thoracic roentgenograms of some value in making the diagnosis of bronchostenosis. Several factors contribute to the high incidence of negative roentgenologic findings. Bronchostenosis may not have been present long enough in many instances to have produced changes visible in stereoscopic roentgenograms. In other

cases, the lesion may be situated behind the cardiac shadow in the routine posteroanterior view of the thorax, and in other instances the presence of long-standing bronchitis results in rather dense peribronchial shadows, which may obstruct the fainter roentgenologic signs of obstructive pneumonitis.

When roentgenologic evidence of bronchostenosis is found, it is usually suggestive of atelectasis or, less frequently, bronchiectasis. In the case of the latter, the clinician should not confuse the syndrome of bronchostenosis complicating asthma with true bronchiectasis. Wald-bott^{2b} also made this observation during his experience with this complication of asthma. Lemon and co-workers⁵ described the roentgenologic appearance of atelectasis as a "gauze-like shadow which extends more or less fan-like from the hilum toward the periphery of the lung and is of such slight density that the bronchovascular markings can be seen through it. Often an elevation of the corresponding arch of the diaphragm is associated with it and the heart and mediastinal structures may be displaced toward the affected side." This has been repeatedly confirmed in our cases of bronchostenosis complicating asthma.

BRONCHOSCOPIC OBSERVATIONS

The commonest indication for bronchoscopic examination in patients with asthma is the need of confirming or excluding the diagnosis of bronchostenosis. When the history and the results of physical examination and roentgenologic examination suggest the possibility of a complicating bronchostenosis, the patient should have the benefit of bronchoscopic examination. The only clinical means available for determining whether benign bron-

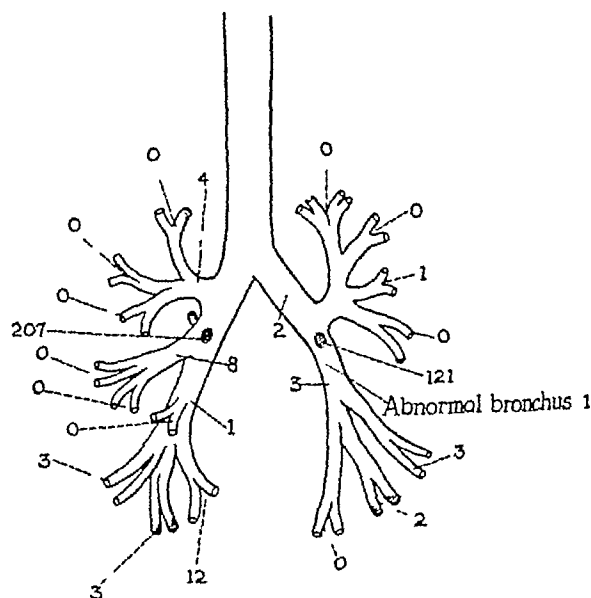


Fig. 2—Diagram of the bronchi showing the incidence and location of bronchostenosis in 327 patients

chostenosis exists is direct observation by means of the bronchoscope. Should a stenosed bronchus be visualized, it can be dilated immediately and the retained secretions aspirated. Dilatation and aspiration alone will usually give prompt relief. When an experienced bronchoscopist is available, it is better to examine the bronchi in a suspected case and fail to find stenosis than to overlook a

⁵ Lemon W S, Vinson P P, Moersch H J and Kirklin B R. Primary Carcinoma of the Bronchus, *Southwestern Med* 16:485-493 (Dec.) 1932.

stenosed bronchus that is present and thereby subject the patient to continued and persistent cough that will invariably aggravate asthma

Bronchoscopy in such patients will reveal the usual findings of asthmatic bronchitis and, if stenosis is present at the time of bronchoscopy, a purulent secretion may be seen oozing from the narrowed lumen of the stenosed bronchus. When the stricture is dilated by means of dilating forceps, varying amounts of retained mucopurulent or purulent secretions will be found and can be aspirated. It may also be noted that the stenosed bronchus bleeds more readily when touched than does a normal bronchus.

In our series, the incidence of bronchostenosis was far higher in the right lung than in the left and, as has been previously stated, the superior division of the lower lobe is most frequently the portion involved (see the table and fig 2).

There undoubtedly are many cases in which bronchostenosis complicating asthma clears up spontaneously. Perhaps the recent frequent use of antibiotics in the treatment of the acute febrile complications of asthma has prophylactic or therapeutic value in such instances. If so, this complication will be encountered less often in the future.

Bronchostenosis may not be seen in patients who undergo bronchoscopy during an interval when they have no symptom or other evidence of stenosis, even though the history suggests previous bronchostenosis. In such cases, there usually are increased secretions and other findings encountered in cases of chronic bronchitis. In other instances, some degree of stenosis persists even after the febrile episode subsides. The presence of this stenosis aggravates the patient's cough and asthma and may lead to subsequent febrile episodes.

At times more than one stenosed bronchus may be encountered, and in these cases the stenoses may be found on one side, or they may occur on both sides of the bronchial tree. We have noted that recurrences may take place in the same bronchus, in another bronchus of the same lung, or in the other lung. At the time of bronchoscopy in patients in whom a new site is involved, the site of the original stenosis may be entirely clear. Since bronchostenosis in asthma follows respiratory infections, the prevention of recurrences seems to depend on the success of the physician in having the patient avoid or in properly treating the early stages of infections of the respiratory tract. The advice given these patients at the Mayo Clinic is (1) to avoid persons who have colds or to keep a handkerchief or surgical mask over the nose and mouth if it is necessary to come in close contact with a person who has a cold, (2) to keep warm and dry and get plenty of rest, and (3) if a cold is caught, to go to bed at once until the acute episode has passed.

COMPLICATIONS OF BRONCHOSCOPY

Bronchoscopic examination in the asthmatic person cannot be performed without some element of risk. Two of the 1,034 patients in the present study died after bronchoscopy. One died immediately after bronchoscopy and the other within a few hours afterward. No necropsy was performed in the former case, but in the latter there was edema of the medulla at postmortem examination. Both of these patients had severe status asthmaticus, and the

deaths might have been avoided if the bronchoscopy had been done with the patient under ether anesthesia. In 13 of the 327 patients with bronchostenosis, subcutaneous emphysema developed after bronchoscopy and dilatation of the stenosed bronchus. All these patients were treated conservatively, and the emphysema disappeared in 10 to 14 days. There were no deaths from bronchoscopy among the patients who had bronchostenosis.

BRONCHOSTENOSIS FROM OTHER CAUSES

Among the 1,034 consecutive patients with asthma who underwent bronchoscopy we found, in addition to the patients with benign bronchostenosis caused by inflammation, 11 patients whose stenosis was caused by a primary malignant lesion complicating asthma. In all 11 cases, malignant disease was suspected prior to bronchoscopy. In 1942, two of us (L. E. P. and H. J. M.) with Maytum⁶ reported three cases of primary carcinoma of the bronchus complicating asthma. One may also en-

Site of Bronchostenosis in 327 Asthmatic Patients

Right Lung		Left Lung	
Lobe and Segment	No. of Cases	Lobe and Segment	No. of Cases
Upper lobe		Upper lobe upper division	
Apical	0	Apical posterior	0
Posterior	0	Apical anterior	0
Anterior	0		
Middle lobe		Upper lobe lower (lingual) division	
Lateral	0	Superior	1
Medial	0	Inferior	0
Lower lobe		Lower lobe	
Superior	207	Superior	121
Medial basal	12	Anterior medial basal	0
Anterior basal	0	Lateral basal	3
Lateral basal	3	Posterior basal	2
Posterior basal	3		
Upper lobe bronchus	4	Abnormal bronchus (lower lobe)	1
Middle lobe bronchus	8	Lower lobe bronchus	3
Lower lobe bronchus	1	Main bronchus	2

counter stenosis resulting from ulceration of calcareous material into a bronchus from a hilar lymph node, tuberculosis, the presence of a foreign body, or any other cause of constriction of the bronchus, whether extrinsic or intrinsic in origin. In all such instances, correct diagnosis is crucial and usually depends on bronchoscopic examination, the additional information obtained from tissue removed at the time of bronchoscopy, cell studies using the Papanicolaou technique, and smears and cultures obtained from the bronchi at the time of bronchoscopy.

TREATMENT

The treatment of bronchostenosis, as has already been indicated, consists of dilatation of the stenosed bronchus and aspiration of the retained secretions. The results of such treatment are excellent, as measured by the relief of the patient, the subsidence of fever and severe paroxysmal cough, the eventual reduction in the amount and improvement in the character of the sputum, the improvement in the course of the bronchial asthma and, in many cases, the immediate reversal of physical and roentgenologic signs of bronchial obstruction. Recurrences can and do take place, however, as previously noted, they can best

6 Prickman L. E., Maytum C. K., and Moersch H. J.: Asthma and Primary Carcinoma of the Bronchus. *J. Allergy* 13: 261-267 (March) 1942.

be prevented by having the patient avoid or promptly treat respiratory tract infections

Patients who have asthma are usually tolerant of careful bronchoscopy as done by an experienced bronchoscopist. They should have a complete general examination and, in addition, special examinations, such as an allergic survey, examination of the nose and sinuses, and roentgenologic studies of the thorax and sinuses. Sputum when present should be examined for tubercle bacilli and malignant cells before bronchoscopic examination. If an episode of bronchostenosis is occurring and the temperature is high, the acute process should be allowed to subside before bronchoscopy is carried out. Rarely do patients with asthma object to bronchoscopy. Many patients are aware that something is interfering with the raising of their bronchial secretions, which previously had been relatively easy to raise, and are almost eager for the procedure to be done.

RESULTS OF TREATMENT

Letters of inquiry were sent to patients who were examined at the Mayo Clinic in 1950 and were found to have bronchostenosis complicating asthma. These patients all had had dilatation of the stenosed bronchi. Letters were sent also to an equal number of patients who had asthma and who on bronchoscopic examination were found not to have bronchostenosis. This control group was also treated at the Mayo Clinic during 1950. The results of dilatation of stenosed bronchi complicating asthma are similar to the results Schmidt⁴ reported in the dilatation of stenosed bronchi associated with benign, nontuberculous conditions. Sixty-six per cent of his patients obtained favorable results from dilatation, while

60.5% of the patients in our series were immediately improved after dilatation of the stenosed bronchus, and 63.6% noted some improvement during the next several months following bronchoscopy. The asthmatic status has remained improved in 60.5% of these patients. In the control group, 55% of the patients experienced some improvement immediately after bronchoscopy, the number in which there was improvement in the succeeding several months dropped to 48%, and only 45% thought the status of their asthma was improved at the time the questionnaire was received. Thus, from these results, it appears that patients who had bronchostenosis complicating their asthma received a substantial and lasting benefit from dilatation and aspiration of the stenosed bronchus, while in the control group not only were a smaller number improved but the apparent benefit was more transient.

SUMMARY

The syndrome of bronchostenosis and the records of 327 patients who had bronchostenosis complicating asthma and who were seen during the decade ending in 1950 are reviewed. All age groups were represented. The largest number of cases in any decade of life was in the age group 40 to 49 years inclusive. There were 182 female and 145 male patients in the series. Treatment of bronchostenosis consists of dilatation of the stenosed bronchus and aspiration of the retained secretions. We found that 60.5% of patients were immediately improved after dilatation of the stenosed bronchus, and 63.6% experienced some improvement during the next several months following bronchoscopy. The asthmatic status remained improved in 60.5% of these patients.

RATE OF PULMONARY AND TISSUE GASEOUS NITROGEN ELIMINATION AS A MEASURE OF PULMONARY EFFICIENCY

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As pointed out by Fowler¹ in his excellent review on tests of pulmonary functions, one of the principal difficulties encountered by respiratory physiologists in the performance of such studies has been the lack of a satisfactory technique for the routine measurement of the residual or of the functional residual air. As a result, too little attention has been paid to the role these important

components of the lung volume may play in pulmonary function.

In 1948 Boothby, Lundin, and Helmholtz² reported a new test for pulmonary and circulatory efficiency based on the use of the nitrogen meter for measuring the rate and amount of gaseous nitrogen eliminated into a closed circuit respiration apparatus by the patient while he is breathing oxygen. The respiratory apparatus used is an elaboration of a closed circuit basal metabolism apparatus and consists of a water-sealed gasometer with a capacity of 40 liters and an air blower capable of producing a flow of at least 80 liters per minute through the closed circuit system, together with corrugated tubing and valve attached to a mouthpiece. There is a soda lime container to remove the carbon dioxide, and there are filters to remove the soda lime dust and any oil vapor from the blower. The spirometer records the respiratory movements, from which the respiratory volume, tidal air, vital capacity³ (BTPS³), and oxygen consumption

Miss Elizabeth H. Roorbach, A.B., gave technical assistance in this study.

Read at the Sixth Clinical Session of the American Medical Association, Denver, Dec. 2, 1952.

From the Respiration Laboratory, the Lovelace Foundation for Medical Education and Research. This study was aided by a grant from the U. S. Public Health Service.

1. Fowler, W. S. Functional Residual Capacity and Residual Capacity in Methods in Medical Research, Comroe, J. H., Jr., editor in chief, Chicago Year Book Publishers, Inc., 1950, vol. 2, pp. 181-188.

2. Boothby, W. M., Lundin, G., and Helmholtz, H. F., Jr. A Gaseous Nitrogen Elimination Test to Determine Pulmonary Efficiency. *Proc. Soc. Exper. Biol. & Med.* 67: 558 (April) 1948.

3. BTPS = body temperature and ambient pressure saturated with 47 mm. Hg water vapor on assumption that the pulmonary temperature is 37°C.

(STPD⁴) can be calculated, as in an ordinary basal metabolism test lasting half an hour. To allow for variation in the size of the subject, the values are usually expressed per square meter of body surface (DuBois).

The essential new feature of the method is the use of one or two nitrogen meters, which are improvements of the Lilly-Anderson⁵ nitrogen meter designed by them for the United States Navy during World War II. These meters are extremely rapid and can record photographically instantaneous changes in nitrogen concentrations in inspired and expired air. The rate at which this nitrogen exchange takes place when the subject begins to breathe oxygen is important because it is indicative of the rate at which oxygen can go in and carbon dioxide come out of the alveoli. The meters are calibrated by analyzing samples obtained at the beginning and at the end of the test. The intermediate readings of the total accumulated nitrogen are linear over the range used (0 to 15%) when the water vapor content is held constant as in a closed circuit system.

The calibrated nitrogen meter readings multiplied by the volume of the gasometer readings gives the total amount of nitrogen eliminated and can be calculated for short periods as frequently as desired. In practice, readings are taken every half minute for the first 3 minutes, then they are taken every minute for the next 10 minutes, and finally at 5 minute intervals until the end of the experiment. These results are plotted on ordinary arithmetic coordinate paper and on double logarithmic paper. These plots are very characteristic and are sharply defined. The slope of the lines of both plots can be used to separate the gaseous from the pulmonary tissue nitrogen.

The ability to measure gaseous nitrogen elimination permits the following observations: 1. From the point of view of the Air Force, the early studies by Benson, Lovelace, and Boothby used by Boothby, Luft, and Benson⁶ demonstrated that in normal persons in the steady state the time required to lower below one-half the average pressure of gaseous tissue nitrogen in the body could be easily calculated, and thus the danger from decompression sickness to air crews at high altitudes could be reduced. 2. The data of accumulated pulmonary and tissue nitrogen elimination, when the patient is breathing oxygen, can be expressed as a function of time. The tissue nitrogen (after subtraction of the pulmonary nitrogen), with the patient in a steady state, plots as a straight line on log-log paper, and from this the instantaneous rate of nitrogen elimination per minute can be determined. On this rate-per-minute line for tissue nitrogen it is possible to interpolate the values at one-half and at one minute, thus permitting the determination of the circulation rate at rest and at work in subjects or patients who can "wash out" by five deep breaths all of their pulmonary gaseous nitrogen in half a minute. 3. It is possible in normal subjects, and in most patients, to determine with accuracy the volume of the nitrogen in the residual air. Thus the capacity occupied in the lungs by these subdivisions of lung volume can be calculated at body temperature and pressure, saturated (BTPS). 4. The time required under basal conditions to wash out the functional residual air of normal subjects, breathing oxygen, can also be determined. As previously men-

tioned, this is important because, if carefully done under standardized conditions, it is indicative of the freedom with which oxygen can enter the alveoli and carbon dioxide can be eliminated. This time, under strictly basal conditions, is usually between three and four minutes. In patients with pulmonary emphysema, or with large pulmonary cavities, the time required is definitely increased—in some instances to 10 minutes. An increase in the apparent pulmonary nitrogen may be due to large intrathoracic tumors of certain types, and this complicates the differential diagnosis, especially if these tumors also contain cavities or air blebs. In patients with a decreased residual and with a very small or no expiratory reserve, and who, therefore, have shallow and very rapid breathing, the wash-out time may be shortened to less than two and one-half minutes under as near basal conditions as can be obtained. 5. The tidal air and the vital capacity, which is composed of inspiratory and expiratory reserve air, are determined as in the past. In addition, the determination of the residual air and the total lung capacity increases the clinician's ability to estimate the

*Approximate Values of Pulmonary Air Divisions
Per Square Meter of Body Surface (BTPS)**

Tidal volume per breath (T V /b)	200-300 cc per square meter
Inspiratory reserve air (I R A)	1 700 cc per square meter
Expiratory reserve air (E R A)	.00 cc per square meter
Residual volume (R V)	800 cc per square meter
(Includes anatomic dead space = 70 cc per square meter)	
Functional residual volume (F R V) is the sum of E R A and R V	
Vital capacity (V C) is the sum of I R A and E R A	
Total capacity (T O) is the sum of I R A, E R A and R V	

All volume measurements are made from a line drawn along the bottom of the resting tidal volume. The level of this line in relation to the maximum inspiratory and expiratory volume may be of physiological and clinical importance. The inter-individual variability of this line is large. Its intra-individual variability can be affected by character of respiration and is probably a large component of, but not identical with, the variation of functional dead space of Douglas and Haldane.

* There is considerable variability even in normal persons.

subject's pulmonary efficiency. 6. H. Colldahl and Gunnar Lundin⁷ have recently reported, from the Allergy Laboratory of the Medical Clinic and Department of Air Medicine of the Institute of Physiology, Lund, Sweden, a very interesting study under strictly standardized conditions on the quantitative registration of the severity of asthma in provocation tests in patients suffering from asthma. They use this as an additional method to establish the causative factor and to follow the effect of treatment.

Drinker⁸ summarizes the following important estimates concerning the functioning capacity of the lungs:

4 STPD = standard temperature and pressure dry (760 mm Hg and 0°C dry).

5 Lilly J C and Anderson T F. Nitrogen Meter. CMR Report No 299. 1944. Lilly J C. Respiratory System Methods. Gas Analysis in Medical Physics, edited by O Glasser. Chicago: Year Book Publishers Inc. 1950. vol 2, p 845.

6 Boothby W M, Luft U C and Benson O O Jr. Gaseous Nitrogen Elimination: Experiments When Breathing Oxygen at Rest and at Work with Comments on Dysbarism. J Aviation Med 23: 141 (April) 1952.

7 Colldahl H and Lundin G. Ventilatory Studies of the Lungs in Asthma: Nitrogen Elimination Efficiency of Lungs During Oxygen Breathing in Patients with Asthma. Bronchial Method for Objective Registering of Even Mild Asthmatic Breathing Examined in Provocation Tests. Acta allergol 5: 37. 1952.

8 Drinker C K. Pulmonary Edema and Inflammation: Analysis of Processes Involved in the Formation and Removal of Pulmonary Transudates and Exudates. Harvard Monograph in Medicine and Public Health no 7. Cambridge Mass: Harvard University Press. 1945.

in normal persons of average size

- 1 Alveoli—The surface for gas exchange provided by the alveoli of the lung in an adult is approximately 90 sq m. It is estimated that there are 750 million alveoli in man, and that at rest one-twentieth of their total aerating surface is used.
- 2 Capillaries—The estimated capillary area of the lungs available for gas exchange is approximately 140 sq m.

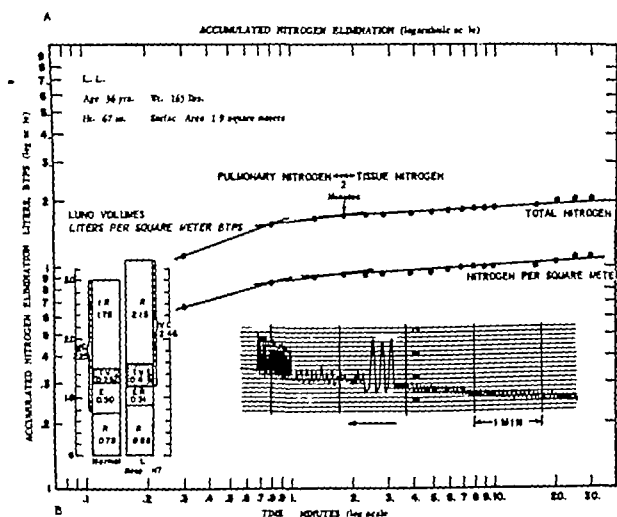
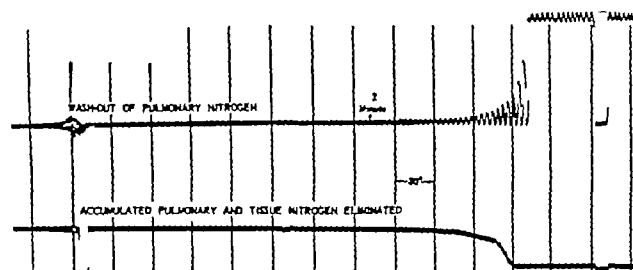


Fig 1—Nitrogen elimination curves for patient L. L. a normal subject. A curves obtained directly by the Lilly Anderson meters. The upper curve shows the nitrogen concentration in the breath by breath wash-out of pulmonary nitrogen as obtained by the nitrogen meter with sample take-off near the mouthpiece. The lower curve represents the pulmonary and tissue nitrogen as it accumulates in the closed circuit system. B, plotting of the calculated pulmonary plus tissue nitrogen elimination on log-log paper against time. The upper curve is the total nitrogen elimination of the subject and the lower curve is the same data expressed per square meter.

This huge surface, by virtue of the net-like arrangement of the capillaries, is very readily available for even distribution, without serious pressure changes, of the volume of blood thrown into it by each ventricular contraction. It is perfectly adequate for receiving all the blood that comes to it—approximately 4 liters per minute at rest to over 30 liters per minute at work—even when changing back and forth very rapidly from rest to work.

In the table are the numerical values frequently found in normal persons for the important subdivisions of the pulmonary air, expressed at BTPS. Variations in the size of the person are roughly allowed for on the basis of square meter surface area as we are accustomed to do for the basal metabolic rate, however, the variation, even in normal persons, is much greater than are the variations in basal metabolism, and they depend on many as yet incompletely studied factors.

In an analysis of the two nitrogen elimination curves (fig 1A) in a normal subject, the upper curve, because of the variation in water vapor in inspired and alveolar air, and because of the difference in amount of carbon

dioxide, is only approximately quantitative. Nearly all of the pulmonary nitrogen is washed out in about two minutes after the subject starts breathing oxygen. The subject was not under basal conditions, therefore, the respiratory rate was increased. Ordinarily, in the normal person under strictly basal conditions the wash-out time is approximately three to four minutes. The lower curve, depicting the pulmonary and tissue nitrogen as it accumulates in the closed circuit system, represents the oxygen-nitrogen concentration quantitatively, because the water vapor is constant and the carbon dioxide is removed. The salient feature to be noted here is that, after about 12 seconds delay, owing to time required for mixing in the closed circuit apparatus after the change over to oxygen, there is a marked rise in the accumulated nitrogen with sample take-off on the inspiratory side of the closed circuit system. By means of a calibrated scale, the percentage amount of nitrogen accumulated in the gasometer circuit can be determined and the total amount of nitrogen eliminated easily calculated from the gasometer volume. The characteristic bend or knee in the nitrogen elimination curve (fig 1B), which separates pulmonary from tissue nitrogen, occurs at two minutes. It is the moment at which essentially all the pulmonary nitrogen has been eliminated, and from that point onward to the right the curve is an expression

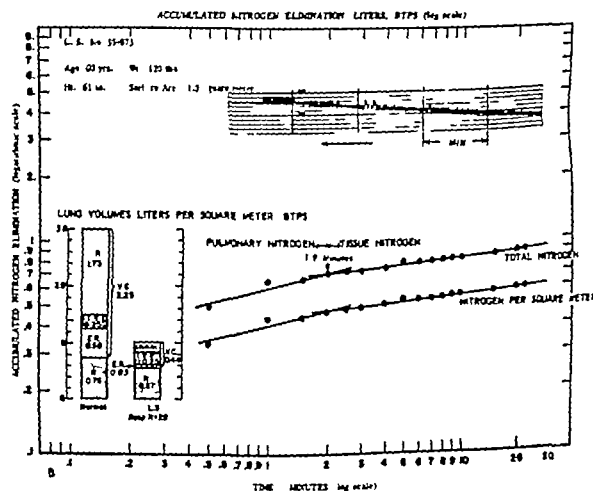
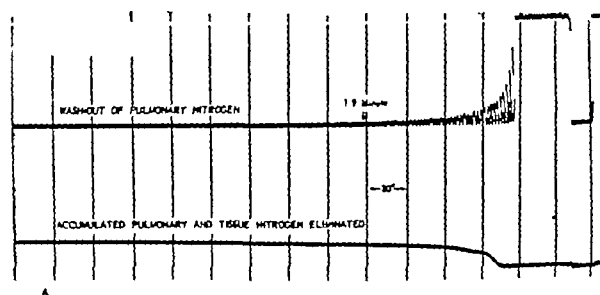


Fig 2—Nitrogen elimination curves for patient L. S. who had marked cardiac decompensation and pleural effusion and therefore decreased residual nitrogen. A the pulmonary wash-out required about 1.9 minutes as is shown in the upper curve. The lower curve represents the accumulation of the pulmonary and the tissue nitrogen. B the upper curve represents the standard respiratory curve and the log-log plot the lower curve shows that the amount of residual air was small.

of tissue nitrogen elimination, the rate of which is mainly dependent in normal persons on circulation rate. This portion of the curve, after subtraction of the pulmonary

nitrogen, has been shown by Boothby, Lovelace, and Benson to be a straight line in normal persons on log-log paper for at least 150 minutes. Subsequently, Boothby, Lundin, and Helmholz² found this straight line relationship of tissue nitrogen in normal persons under basal conditions to last for five hours. The spirometer respiratory curve shows an average tidal volume of approximately 410 cc per square meter per breath. The inspiratory and expiratory reserve air values can be calculated from the maximal inspiration and expiration. The sum of these is the vital capacity. The level of the tidal air in relation to the inspiratory and expiratory reserves varies greatly even in normal persons, thus affecting the functional residual air volume. The interindividual residual air is less variable than the functional residual air, provided the subjects can readily expire completely.

The nitrogen elimination curves obtained for a patient with marked cardiac decompensation and pleural effusion as shown by x-ray examination showed the pulmonary nitrogen wash-out to require about 19 minutes (fig 2A). The pulmonary nitrogen level was very low, indicating a marked decrease in freely functioning alveoli.

The standard respiratory curve is shown at the top in figure 2B. The breathing is rapid and shallow. The subject has practically no measurable expiratory reserve (30 cc) and an inspiratory reserve of only 410 cc, therefore, the vital capacity was only 440 cc, of which about 250 cc were tidal volume per breath. Each breath, therefore, was more than half of the extremely small vital capacity, and, in consequence, there was almost no reserve for even minimal exercise. The log-log plot showed that the residual air was small, amounting to only 570 cc per square meter, or a total capacity of only 1,010 cc. As could be expected, this patient was practically bedridden.

In a person who has had a tentative diagnosis of pulmonary emphysema of many years' standing (fig 3) the differentiation between pulmonary and tissue nitrogen is less distinct than in normal subjects and, therefore, complicating factors may be indicated. The spirometer graph demonstrates the fact that the ventilation per minute is greatly increased, mostly as a result of the rapid breathing with a small increase in volume per breath. The inspiratory and expiratory reserves are greatly diminished below normal. The residual air is greatly increased. Following the three maximal breaths there is indication of inability to expire. Helmholz⁹ has shown marked examples of this phenomenon, which he labeled "air trapping." The bar graph shows that the residual air is over three times as great as that seen in the normal person. Apparently, in order better to aerate this enlarged residual air volume, the tidal volume is moderately increased. The data suggest that possibly in some patients the residual air should be divided into two parts: (a) the free residual air and (b) the restricted residual air of cavities or "blebs."

SUMMARY

The purpose of this paper is to call attention to some of the information in regard to pulmonary function that can be obtained and recorded by new types of instruments, especially the nitrogen meter constructed during World War II at the Johnson Research Foundation, Philadelphia, under director Detlev W. Bronk. We have

presented three examples in which the rate and the amount of pulmonary nitrogen elimination was studied in addition to the usual diagnostic procedures for estimating pulmonary efficiency. One of the examples is a normal person, another is a patient with decreased residual nitrogen, indicating an exceedingly small volume of functioning pulmonary tissue, that is, of freely open alveoli, and the third is a patient in whom the residual nitrogen is very greatly increased, probably from several causes, such as dilatation of alveoli, cavities, and intrathoracic tumor tissue.

There is no doubt that, in the near future, the nitrogen meter and other instruments of this type that can be used

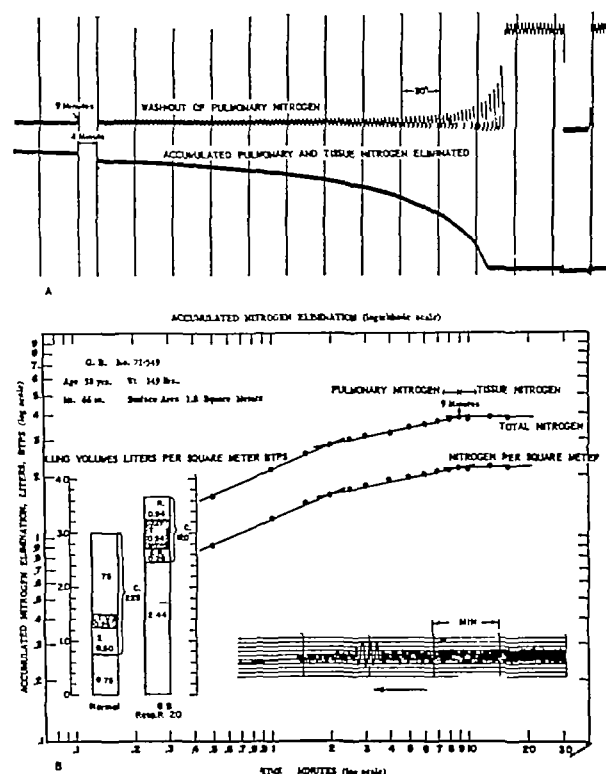


Fig. 3—Nitrogen elimination curves for patient G. B. who had pulmonary emphysema of many years' standing thereby creating increased residual nitrogen. A the upper curve indicates the extremely long pulmonary wash-out time of nine minutes. It was difficult, on the lower curve to differentiate pulmonary from tissue nitrogen. B the differentiation between pulmonary and tissue nitrogen is more distinct on log log paper.

to estimate pulmonary function can be improved. The terminology used by the clinician, by the surgeon, by the respiratory physiologist, by the roentgenologist, by the anatomist, and by the pathologist must be gradually modified and harmonized in order to correlate the functional data with the anatomic findings both in health and in disease. At the present time this method of study of pulmonary function, with new instruments, is comparable in development to that of the roentgen ray two score years ago. This has indeed been an interesting era of diagnostic development brought about by specialists in each field. The problem of the future will involve correlation of the various types of investigation.

4800 Gibson Blvd SE (Dr Boothby)

9 Helmholz, H. F. Jr. Symposium on Dyspnea. Laboratory Studies of Patients Whose Chief Complaint is Dyspnea. Proc. Staff Meet., Mayo Clin. 27: 61 (Jan. 30) 1952.

PROBLEMS OF ANESTHESIA FOR SURGICAL PROCEDURES WITHIN THE CHEST

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Surgical procedures involving opening of the thoracic space have multiplied in incidence and variety many times in the past decade and even in the past five years. With the advent of new techniques and drugs, surgery involving the lungs has become commonplace as compared with 1942. Esophageal surgery, ranging from that for carcinoma in the aged to repair of tracheoesophageal fistula in the newborn, is capably done over the entire country. Certain neurosurgical procedures may involve entry into the pleural space, and intrathoracic cardiac or vascular surgery has been developed in recent years to a spectacular degree. Most sizable communities are beginning to regard operations on the mitral valve or coarctation of the aorta as operations with definite indications and predictably bright prognoses. Such being the case, it seems desirable that referring physicians should have some conception of the problems, accidents, and complications encountered in the operating room in the course of such procedures.

The conclusions presented in this paper are drawn entirely from several years of private practice in anesthesia. During the past four years, we have conducted the anesthesia for about 1,600 intrathoracic operations, including 1,350 pulmonary procedures and 150 cardiac or vascular operations. In the latter group are such cases as mitral or pulmonary stenosis, aortic coarctation, and patent ductus arteriosus. In addition, there were 25 cases of tracheoesophageal fistulas, 50 cases of esophageal resection, and a number of cases of miscellaneous disorders.

CHOICE OF ANESTHETIC

There is some difference of opinion, or at least of emphasis, concerning the choice of anesthetic agents to be used as well as the techniques to be employed. Much has been written on this subject, and it does not seem necessary to discuss it fully at this time. It is increasingly self-evident, however, that the particular agent used is of far less importance than the ability of the anesthesiologist. Ether probably is used more frequently than other agents for intrathoracic procedures, because respiration is deeper and less manual control is required on the part of the anesthesiologist. Ether is slower acting, and the plane of anesthesia is, therefore, more easily maintained at a given level than is the case with cyclopropane. It is possible that ether affords more protection than other agents against cardiac arrhythmias. Cyclopropane also has considerable value in anesthesia for chest surgery. Rapid inductions and intubations with thiopental (Pentothal) sodium, curare, and cyclopropane subject the patient to far less physiological trauma, if carefully done, than do slower procedures. Early intubation permits a good patent airway with immediate facilities for suction,

if necessary, as well as for a change of agent to ether, if desired, without the intervening complication of laryngospasm. Such techniques must, however, be carefully individualized to fit the particular situation presented by each patient.

RESPIRATORY PROBLEMS

There are many problems encountered during the surgical procedure, the first general group of which are those related to the respiratory system. By the nature of the surgery, such cases present the problem of an open chest and a collapsed lung. They require, therefore, use of endotracheal techniques, whether in the aged or the newborn. The latter, in particular, require highly specialized equipment, from a wide selection of endotracheal tubes to breathing bags and soda lime absorbers of a size to correspond to the tidal volume of the patient.

Laryngeal edema as a result of endotracheal intubation is rarely a significant factor in adult patients. The post-operative occurrence of this complication is seen more frequently in infants. In most instances, steam inhalations are sufficiently efficacious, although on rare occasions tracheotomy may be indicated. In any case, the considerable advantages of an endotracheal airway greatly outweigh the infrequent complications that may result from its use.

The very existence of a collapsed lung presupposes the necessity at any time or at all times of the use of techniques of controlled or compensated respiration. With a mobile mediastinum, the problem of paradoxical breathing is almost constant. Thus the anesthesiologist is torn between his responsibility to maintain an adequate tidal volume by means of positive pressure controlled techniques and a desire not to balloon the lungs overmuch into the surgical field.

The appearance of secretions, pus, or blood in the bronchi is a common occurrence that may, on occasion, lead to serious respiratory obstruction and asphyxia. The anesthesiologist must be constantly on the alert for the sudden appearance of massive hemorrhage, the gradual accumulation of bronchial secretions, and obstruction of the bronchi by debris, such as pieces of free cancer tissue. Suction facilities must be good and instantly available, and the head-down position should be used in urgent circumstances. The widespread preoperative use of the antibiotics has almost led to the disappearance of the so-called wet cases of bronchiectasis, in which pus literally poured from the endotracheal tube. This has almost obviated the need for afternoon schedules that permit planned drainage of the tracheobronchial tree.

Surgery and anesthesia in asthmatic patients often present special and sometimes serious problems. These patients occasionally have large quantities of thick, glairy mucus in the bronchial tree, which is difficult or impossible to remove. Bronchospasm may be present

initially, leading to slow difficult inductions, or may develop at any time during the procedure. Since bronchospasm is mediated by vagal stimuli, the use of thiopental sodium or cyclopropane is theoretically contraindicated, and ether, which has a sympathomimetic action, is usually the agent of choice. Increased dosage of atropine or scopolamine before or during the anesthesia may be helpful in blocking vagal action.

Of all the preexisting pulmonary complications, the presence of advanced emphysema is perhaps the most serious. In patients with this condition anesthetization is often slow and oxygenation difficult. The recovery of the patient following anesthesia may be relatively delayed, under circumstances in which it is especially desirable that the patient regain his cough reflexes. Far advanced emphysema is often coupled with an increased load on the right ventricle, and complete or partial resection of one lung may place an increased and sometimes lethal burden on the heart. Any reduction of the oxygenating capacity of the lungs may be serious. Especially in this type of patient, careful preoperative evaluation of pulmonary function is essential.

CARDIOVASCULAR PROBLEMS

Cardiovascular problems and complications are legion in cases of surgical intervention for the correction of such developmental defects as patent ductus arteriosus and coarctation of the aorta or for the improvement of efficiency of the heart and circulation in mitral stenosis and tetralogy of Fallot. They run the gamut from hemorrhage and shock to hypertension and cerebrovascular accidents, from simple, relatively benign arrhythmias to cardiac arrest. The nature of the pathological condition involved, with resultant alterations in hemodynamics, blood oxygen saturation, and cardiac irritability and reserve, makes the occurrence of the complications probable rather than the reverse. The predictably good results these patients may enjoy today have been made possible only by the combination of several factors: careful preoperative evaluation of the patient, adequate preparation before surgery, close attention to detail, and the invaluable aid of a competent cardiologist and the making of a continuous electrocardiographic tracing during the operation.

Arrhythmias are high on the list of complications that cause concern in the operating room. The cause of arrhythmias is not always clear. Many patients come to surgery arrhythmic, most commonly with auricular fibrillation. Merely opening the chest may cause the heart to beat irregularly. Certainly the opening of the pericardial sac, handling of the heart itself, injection of the base of the auricular appendage, application and removal of clamps, and other factors may at times cause a variety of arrhythmias. Undoubtedly, suboxygenation makes the heart more irritable and increases the likelihood of the occurrence of the more serious abnormal rhythms. Many arrhythmias can not be detected by ordinary blood pressure and pulse determinations. A successful outcome is more assured if an electrocardiograph is attached to the patient on the operating table and a cardiologist is present to interpret the readings and advise on the proper drugs and dosages to be used.

One of the commoner occurrences is a significant change in rate of the heart, with or without a change in

pressure. Usually the heart rate gradually becomes more rapid during surgical intervention for mitral stenosis. On occasion, however, the rate may become too rapid too early in the procedure. Intravenous administration of 0.15 cc of a 1:2,000 solution of neostigmine (Prostigmin) effectively slows the rate. In some cases, there occur a rising rate, a falling blood pressure, a narrowing pulse pressure, and an electrocardiographic tracing showing left ventricular strain. The drug of choice here may be lanatoside C (Cedilanid), 1 to 2 cc given intravenously. Occasionally, the development of a bradycardia may indicate increased vagal tone. Administration of 1/300 grain (0.2 mg) of atropine intravenously is often helpful in this circumstance. A bradycardia that does not respond to atropine is of grave significance. It is seen oftener in cyanotic patients, such as those with tetralogy of Fallot. If it occurs early and does not respond to drugs or to inflation of the collapsed lung, the termination of the case may be fatal. Occasionally, the blood pressure drops to a level sufficient to cause concern, with no change in rate and no material change in the electrocardiographic tracing. Administration of 0.5 to 1 cc of a mild vasopressor has proved beneficial in such instances.

PROBLEM OF BLOOD LOSS

The problem of blood loss and its replacement is ever present in this type of surgery. During some mitral valvulotomies, the blood loss may not exceed 200 or 300 cc, but during the resection of a coarctation of the aorta, it is common for the patient to lose 1,000 to 1,500 cc in opening the chest, for collateral vessels in the chest wall are large and numerous. There is always the possibility of a sudden accidental loss of blood in considerable quantity. Blood typing and cross matching should be done on all patients, and an adequate supply of blood should be available at surgery, 1,500 cc is the amount usually on hand before surgery begins. More is ordered as surgery proceeds and as circumstances indicate. As soon as the patient is placed in position, a needle of adequate bore, from 15 to 18 gage, is introduced into a suitable vein in the hand or forearm. A sphygmomanometer pump is at hand to speed the administration if it becomes necessary. Exposing the vein for introduction of the needle is rarely necessary, except in cases of infants and small children.

The amount of blood administered varies with each patient. The objective is always to replace blood while it is being lost. At the same time, it is important not to overload patients who are old and debilitated or those whose cardiac reserve is poor. Blood loss is estimated from that collected in the suction bottle and from the number, size, and saturation of the sponges. Observation of the patient's color, skin temperature, capillary return, blood pressure, and pulse pressure is helpful in estimating whether there is need for more speedy blood replacement.

TIME FACTOR

The factor of time is exceedingly important in this type of surgery and anesthesia. It has been fashionable in recent years to say that, with good anesthesia and other modern facilities, time is an unimportant factor. Even assuming that the best anesthesia and surgical ability are provided and that blood replacement is good, the elapsed time is one of the major factors in the ultimate welfare

of this group of patients. The time anticipated for a surgeon to complete a given procedure in a poor risk patient may be the final determining factor in deciding whether to operate in the first place. The good, rapid surgeon certainly will have a far wider selection of procedures and patients than will the good, slow surgeon.

Most of the adult patients in this type of practice are physiological cripples. They are usually patients with seriously impaired pulmonary or cardiac function or both. The unrelenting processes of disease and old age, coupled with major surgical procedures often involving the impaired organs and basic physiological functions, make necessary the extremest care in planning such operations. It must be borne in mind, furthermore, that some of this group of patients may have so little pulmonary or cardiac reserve that major intrathoracic surgery simply cannot be considered. Errors of judgment in this area perhaps account for the great majority of deaths in any large series of intrathoracic surgical cases. The newborn baby with a tracheoesophageal fistula will, on the other hand, often withstand the most astonishing degree

of abuse at the hands of both the surgeon and the anesthesiologist, because he usually possesses a good heart and a good pair of lungs.

CONCLUSIONS

In closing, it must be emphasized that all of the many segments of the problem discussed enter into selection of patients for chest surgery and determination of the prognosis. All or most of the criteria mentioned must be met for surgery to be permitted. These many elements include the skill, judgment, and speed of the surgeon, the skill and judgment of the anesthesiologist, and the ready availability of any amount of blood required, coupled with the early recognition and immediate, unruffled treatment of crises by both surgeon and anesthesiologist working together as a friendly, sympathetic team. With a combination of such factors present, many lifesaving, health-giving surgical procedures may be made available to an increasingly large group of patients otherwise destined to a life of chronic ill health or early death.

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BLOOD GROUPING TESTS FOR EXCLUSION OF PATERNITY

RESULTS IN ONE HUNDRED EIGHT CASES

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The scientific foundation on which the value of blood tests in paternity disputes rests is the individuality of different persons' blood and the fact that the characteristics that determine this individuality are inherited according to definite principles. All inherited characteristics are determined by genes, which are present in rod-like bodies called chromosomes. These latter occur in pairs in the somatic cells, and one member of each pair is present in the nucleus of the male sperm and in that of the female ovum. Thus, each parent makes an equal genetic contribution to the blood group characteristics present in the red blood cell envelop of their offspring. In 1900 and 1901, Landsteiner discovered two of these blood group characteristics, which he called the A and B factors. Four combinations of these determine the blood groups of the A-B-O blood group system. Since

then, however, the matter of blood groupings has become complicated, because, by now, more than nine independent blood group systems have been described, which determine more than 50,000 varieties of blood. Thus, the complete blood grouping of a person may some day become almost as distinctive as his fingerprint.

With the acquisition of this scientific knowledge, its value for the solution of medicolegal problems has been established.¹ It seems worth while to report this series of 108 cases of disputed paternity, since only two other workers using three blood group systems have reported significant series of cases.² These tests have been used both in the United States and abroad. The states of New York, Wisconsin, Ohio, New Jersey, Maryland, South Dakota, North Carolina, Maine, and Pennsylvania have laws giving the courts power to order blood grouping tests when indicated in paternity disputes.³ In states where no such law exists, tests can be carried out with consent of the parties involved, and the results are admissible as evidence. These tests may exclude paternity but can never prove it. While the results of an exclusion are admissible in evidence, they are not necessarily binding on the court. In my series, when the results proved non-paternity, they were accepted as conclusive, and the outcome of the case was decided largely by results of the tests. Even though the blood tests cannot be used to prove paternity, a husband with merely doubt about the paternity of his child may derive great comfort if they fail to exclude paternity. In such instances, the results may deter legal action and actually save the marriage.

Proper performance and interpretation of the tests demands special knowledge, training, and experience.

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Because of space limitations some of the bibliographic references have been omitted from THE JOURNAL and will appear in the author's reprints.

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2a Wiener, A. S. and Sonn, E. B. Heredity of the Rh Blood Types. IV. Medicolegal Application in Cases of Disputed Parentage, *J Lab & Clin Med* 30: 395-404, 1945.

2b Wiener, A. S. Recent Developments in the Knowledge of the Rh Blood Types. Tests for Rh Sensitization (Ward Burdick lecture) *Am J Clin Path* 16: 477-497, 1946.

2c Alvarez, J. de J. Exclusion de paternidad por medio de los grupos A, B y O los factores M y N los subtipos de Rh y el Hr. *Bolet Asoc med Santiago* 6: 463-492, 1948.

2d Wiener, A. S. Heredity of the Rh Blood Types. IX. Observations in a Series of 526 Cases of Disputed Parentage. *Am J Human Genet* 2: 177-197, 1950.

3a Schatkin, S. B. Disputed Paternity Proceedings, ed 2. New York: Mathew Bender & Company, Inc., 1947.

3b Lombard, J. F. Adoption, Illegitimacy and Blood Tests (Massachusetts Practice vol. 3). Boston: Boston Law Books Company, 1952. pp 723-798.

Therefore, only qualified experts should undertake medicolegal cases of this nature. It is difficult to define the qualifications of an expert, but wide experience in the field is most important. The extent and quality of that experience can best be judged by the positions held and by the scientific work published. The tests, especially those for the Rh-Hr factors, are delicate and must be carried out meticulously to guarantee accurate results. Correct interpretation of the results requires experience and knowledge of both immunohematology and genetics. An understanding of the qualitative differences in the various agglutinogens is essential, for example, in the A-B-O system there are variations of the A agglutinin designated as A₁, A₂, A₃, A₄, and so forth, here arranged according to the strength of their reactions with anti-A serum. The weakly reacting varieties require extremely potent serums. These differences of the A agglutinin are not, at present, made use of in the exclusion tests.⁴ A variant of the N factor, called N₂, is found only associated with M, giving rise to the type MN₂. This weakly reacting antigen can be detected only with special anti-N serum, otherwise the blood may erroneously be considered to belong to group M. Great care must be taken to avoid this pitfall. In the Rh-Hr system there are also weakly reacting antigens called variants,⁵ which must be carefully taken into consideration to avoid error. The most important one is the Rh₀ variant, Rh₀. Unless this factor is tested for by a special technique, such as person may erroneously be classified as Rh negative.

METHODS

Evidence submitted by the expert pertains to the results of examinations of the blood of persons involved in the dispute. The examination consists of a series of tests to determine the presence or absence in the red blood cell membrane of characteristics called agglutinogens. Of the various blood group systems now known,⁶ only three are used medicolegally, namely, the A-B-O, the M-N,⁷ and the Rh-Hr systems. (The S and s factors,⁸ which form part of the M-N system, are not tested for, because such small quantities of the antisera are available that they are used only for research and not for routine work.) The P, Lewis, Lutheran, Kell-Cellano, Duffy, and Kidd groups are not used at present for medicolegal purposes. As pointed out in a recent report,⁴ the reasons for omitting these are that satisfactory, specific diagnostic serums are not available, that certain characteristics are demonstrable only by the indirect antiglobulin method, or that the mechanism of heredity is not as yet clearly established.

To determine the presence of the various factors that comprise the three systems used, a specimen of blood of each person involved in the controversy is obtained, preferably from a superficial vein. In certain instances, especially in newborn infants, capillary blood may be obtained by pricking the finger or heel. As far as the reliability of the tests is concerned, such capillary blood is equal in value to venous blood. The only precaution necessary is to be certain to obtain an amount sufficient to carry out all the necessary tests. Prior to drawing each specimen of blood, the name of the person is written on labels. As a check against typographical errors, additional information, such as "mother," "putative father"

or "child" together with the age of the child if more than one is involved, is also put on the label. These labels are then attached to test tubes prior to actual drawing of the blood. When blood has been drawn and placed in the test tube, the operator again reads the label on the test tube to be absolutely certain that it bears the name of the person who donated the specimen. For further identification, fingerprints are taken, and in newborn infants footprints may be added.

The red blood cells of each person are washed with isotonic sodium chloride solution and a 2% suspension prepared. A series of tests is carried out on the cell suspensions, using antisera for A, A₁, B, M, N, Rh₀, rh', rh'', hr', and hr'' factors. In fact, each of the tests should be made in duplicate with two different samples of each of these antisera. A series of control cells the blood factors of which are known are also similarly examined. The serum of each person is tested against red blood cells known to belong to group O, A₁, A₂, and B. If the factor tested for is present, clumping of the cells results, whereas, if the factor is absent, no clumping results.

RESULTS WITH REPORT OF CASES

Each of the three blood group systems utilized contributes to the total chance of excluding paternity by a man falsely accused of being the father of a given child. The chance of doing this by the A-B-O system is about 18%, by the M-N system about 18%, and by the Rh-Hr system about 25%. When all three systems are used simultaneously, the chance is greater than 50%.

In the present paper, the results in 108 cases of disputed paternity are analyzed. In all cases, the blood samples were examined for the various factors of the A-B-O, M-N, and Rh-Hr systems, two different examples of each of 10 different antisera being used. In some instances, examination for one or both Hr factors was obviously unnecessary, and the test was then omitted. Except for the earliest cases in this series and except in cases in which the test was obviously not indicated, the hr'' factor was tested for, two different samples of anti-hr'' serum being used.

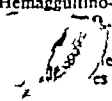
The following basic principles, or laws, form the basis for the determination of nonpaternity: 1. Agglutinogens A, B, M, N, Rh₀, rh', rh'', hr', and hr'' must be present in the blood of one or both parents to be present in the blood of the child. 2. A group AB parent cannot have a group O child, a group O parent cannot have a group AB child. 3. A type M parent cannot have a type N child, a type N parent cannot have a type M child. 4. An hr'-negative parent cannot have an rh'-negative child, an rh'-negative parent cannot have an hr'-negative child. 5. An hr''-negative parent cannot have an hr''-negative child, an rh''-negative parent cannot have an hr''-negative child. (Serums for factor hr'' factor are rare, so that the

5b Wiener A S, Unger L J and Sonn E B. New Data on the Distribution of Rh Blood Types. *Proc Soc Exper Biol & Med* 58: 89-92 1945.

5c Unger L J and Wiener A S. Observations on the Racial Distribution of Blood Type rh. *Proc Soc Exper Biol & Med* 70: 629-630 1949.

6 Unger L J and Katz, L. The Effect of Trypsin on Hemagglutinogens Determining 8 Blood Group Systems. *J Lab & Med* 135-141 1952.

7a Race R R, Sanger R, Lawler S D and Unger L J. Inheritance of the MNS Blood Groups. *Amer J Heredity* 31: 205-213 1949.



number of studies on this factor is small. For this reason, exclusion of paternity based on the hr⁺ factor must be qualified. For other reasons,⁹ exclusions based on this law¹⁰ call for slight qualification.)

The basic principle, namely, that characteristics present in the child's red blood cells are determined by joint contributions of the two parents, is identical in every case. If the examination shows that the child's cells contain factors not present in the blood of the couple involved, one is not or perhaps neither is a parent of the child. In the present series, the tests failed to show nonpaternity in 78 instances. A man not excluded by the tests may, nevertheless, really not be the father, because by coincidence his blood may contain the same charac-

Results of Blood Group Tests in Thirty Cases in Which Nonpaternity Was Proved

Case Number	Putative Father	Mother	Children	Blood Group System Determining Exclusions ^a
1	O N Rh ₁ rh	A ₁ MN Rh ₂	A B N Rh ₁ Rh ₂	A B O
2	O N Rh ₀	O M Rh ₀	(a) A ₂ MN Rh ₀ (b) A ₂ MN Rh ₀	A B O A B O
3	O N Rh ₀	O MN Rh ₀	B MN Rh ₀	A B O
4	O N Rh ₁ Rh ₁	B M Rh ₁ rh	A ₁ MN Rh ₁ rh	A B O
5	O MN Rh ₂ Rh ₀	O N Rh ₂ Rh ₀	B N Rh ₂ Rh ₀	A B O
6	A ₁ M Rh ₀	O MN Rh ₁ Rh ₁	B M Rh ₁ rh	A B O
7	O M N Rh ₀	O MN Rh ₁ Rh ₁	B M Rh ₁ rh	A B O
8	B N Rh ₁ rh	O N Rh ₁ Rh ₁	A ₂ N Rh ₁ rh	A B O
9	O M rh	B MN Rh ₁ rh	O N Rh ₀	M N
10	O N Rh ₂ Rh ₀	O MN Rh ₂ rh	O M rh ⁺ rh	M N
11	O N Rh ₁ rh	O MN Rh ₁ rh	O M Rh ₁ rh	M N
12	A ₁ N Rh ₁ rh	B M Rh ₁ rh	O M Rh ₁ rh	M N
13	A ₁ B N Rh ₁ rh	A ₁ M Rh ₁ rh	B M Rh ₁ rh	M N
14	A ₁ N Rh ₁	A ₁ M Rh ₂	A ₁ M Rh ₁ Rh ₂	M N
15	O M Rh ₂ Rh ₀	O N Rh ₁ Rh ₁	(a) O N Rh ₁ Rh ₁ (b) O MN Rh ₁ Rh ₁ (c) O MN Rh ₁ Rh ₁	M N Not excluded Not excluded
16	O M Rh ₁ Rh ₁	A ₁ MN Rh ₁ Rh ₁	A ₁ N Rh ₁ Rh ₁	M N
17	O MN Rh ₀	B MN Rh ₁ Rh ₁	O N Rh ₁ Rh ₀	Rh Hr
18	A ₁ N Rh ₁ Rh ₁	A ₁ MN Rh ₁ rh	A ₂ MN rh	Rh Hr
19	A ₁ MN Rh ₂ Rh ₁	A ₁ M Rh ₁ Rh ₁	A ₁ MN Rh ₁ rh	Rh Hr
20	O MN rh	A ₁ M Rh ₁ Rh ₁	A ₁ M Rh ₁ Rh ₀	Rh Hr
21	O MN Rh ₁ Rh ₁	A ₂ N Rh ₁ Rh ₁	A ₂ N Rh ₁ rh	Rh Hr
22	O M Rh ₁ Rh ₁	O N Rh ₀	O MN Rh ₀	Rh Hr
23	O MN Rh ₀	O MN Rh ₁ Rh ₁	(a) O MN Rh ₁ Rh ₁ (b) O MN Rh ₁ Rh ₁	Rh Hr Rh Hr
24	A ₁ MN Rh ₂ rh	A ₂ B M Rh ₂ Rh ₀	B M Rh ₁ Rh ₁	Rh Hr
25	A ₂ B N Rh ₂ rh	O MN Rh ₁ rh	O M rh	A B-O and M N
26	O M Rh ₁ rh	O MN rh	A N Rh ₁ rh	A B-O and M N
27	O M Rh ₁ rh	A ₁ MN Rh ₁ Rh ₀	A ₁ B N Rh ₂	A B-O and Rh Hr
28	O MN Rh ₀	O MN Rh ₁ rh	A ₂ N Rh ₁ Rh ₀	A B-O and Rh Hr
29	O N Rh ₂ rh	O N rh	(a) O N Rh ₂ rh (b) O MN Rh ₁ rh	Not excluded M N and Rh Hr
30	O M Rh ₁ Rh ₁	A ₁ M Rh ₁ Rh ₁	A ₁ MN Rh ₁ rh	M N and Rh Hr

teristics as those of the actual father. To illustrate situations unsolvable by blood tests, the following interesting cases are reported.

CASE 1—A woman went to Florida while her husband remained in New York. About a year and a half later, she had a child, although she had at no time lived with her husband during that period. At the time of the child's birth, there was no dispute, in fact, the woman made a frank confession of the facts to her husband. When the child became about 3 years of age, the mother's friends prevailed on her to demand that her husband support the child. Blood tests failed to exclude the husband as a possible father of the child.

CASE 2—A woman, about 40 years of age, almost immediately after her marriage to a wealthy man, about 65 years of age, told him she was pregnant. The husband was delighted. The obstetrician referred these two persons to me for examination of their blood, since examination for the Rh factor is now routinely carried out by almost all obstetricians. Both the prospective mother and her husband proved to be Rh negative. The obstetrician explained to the woman that she was fortunate and that there was no need for worry, because her baby would certainly be Rh negative and therefore, could in no way be adversely affected because of Rh incompatibility. The following day the woman, evidently upset, insisted on seeing the obstetrician immediately and questioned him in regard to his statement that the child would with certainty be Rh negative. She wanted to know if there was any possibility that the infant might be Rh positive and whether it would be absolutely essential that the newborn baby's blood be examined and a record made of the report on the infant's chart. After being told that it would, she confessed that this child was not that of her husband but that of her lover whom she knew to be Rh positive. The obstetrician then had her return to me, and by arrangement, the blood of the father, who was then in Florida, was drawn by a local physician and sent to me by air mail. His blood proved Rh positive, but fortunately it was heterozygous. I explained to her that even though the father was Rh positive, since he was heterozygous, there was a 50-50 chance that her baby would be Rh negative. In that case the results of the examinations of her husband could not be used against her to exclude him as a possible father of the child. Actually, when the child was born, he proved Rh negative, and the husband, ignorant of the wife's deception, believed the child his own.

CASE 3—Two men, one about 23 years of age and the other about 60, were admittedly intimate with the same woman. Each was aware of this. The woman became pregnant and gave birth to a child. The parties concerned consulted me because they wished to know which one was the father. They agreed that if either one was excluded the other would marry the girl and give the child his name. The blood examinations failed to exclude either of the two men. Youth and romance prevailed. The woman married the younger, poorer man.

CASE 4—The following interesting case is one that illustrates both the inability of blood tests to exclude paternity and also the lengths to which a man may go to prove his point. A married man wished to be divorced. Although he believed the child his wife had borne was his, he hoped that the contrary would be proved and therefore, requested blood tests. He discussed his problem with a friend, who came up with the idea that since the husband believed that the child was his and the friend certainly had not sired this child, if the friend substituted for the husband and had his blood examined, there would be a better chance of obtaining results beneficial to the husband's case. Examination of the blood of the admittedly innocent friend failed to exclude him as the father. In the meantime, the husband was either smitten with a guilty conscience or wished a second opportunity to prove and confessed the deception to his attorney, who promptly got in touch with me and gave me the facts. It was agreed that this time the attorney would come in person to my office with the litigant and identify him. An examination of the husband's blood failed also to exclude him as the father. It is almost impossible to get all parties concerned together simultaneously for mutual identification, and it is possible that this deception has occurred in other cases. I resort to taking fingerprints of all parties as a means of identification. It must be recognized, however, that even with this safeguard, as illustrated in this case, substitution may be attempted. In this particular instance, it failed.

In this series, definite exclusion of the accused men was possible in 30 cases: in 8 by A-B-O factors alone, in 8 by M-N factors alone, in 8 by Rh-Hr factors alone, and in 6 by two of the three systems used. In two of these last six cases, paternity was disproved by A-B-O and M-N factors, in two by A-B-O and Rh-Hr factors, and in two

⁹ Wiener, A. S., Gordon, E. B., Cohen, L. A. New Rare Rhesus Agglutininogen Am J Human Genet 4: 363-372, 1952.

by M-N and Rh-Hr factors (see the table) There were no triple exclusions While in almost every case where indicated tests were made for the hr' factor, in no case was it possible to base an exclusion on this factor Case 19 in the table is interesting from a immunohematological standpoint, because the putative father belonged to type Rh,Rh₁, which is rare, occurring less than once among 1,000 persons In three cases in this study two children were involved and in one three children were involved In one of the former cases, the husband was excluded as the father of the younger but not of the older child (case 29 in the table), and in another the husband was excluded as the father of the oldest but not of the two younger children (case 15 in the table) In two cases, the husband was excluded as the father of both children (cases 2 and 23 in the table) The following two cases are interesting examples of cases of exclusions

CASE 5—A young American soldier, who happened to be an attorney, fell in love with a young woman while stationed in Germany He would gladly have married her, but at that time marriage was not permitted He was transferred to the north, and subsequently, when he was to be shipped home, he asked to be routed through the town where the woman in question lived When he arrived unexpectedly, he noticed a man's picture in her bedroom, but at the moment he disregarded it and only later did he realize its relevance He remained with her one night and then went on his way to the United States Almost nine months to the day after this last visit, the woman had a baby, to whom she gave the first name of the man whose picture had been seen in her bedroom Yet the young man, without question, assumed that the child was his As soon as the law permitted, he sent the woman funds and arranged that she and the child be brought to this country, where he married her Quarrels, bickering, and unhappiness followed almost immediately When the child was 3 years old, the mother taught him to say Heil Hitler, and at this point the man moved out of his home He took steps to have the marriage annulled, but even though he was an attorney he failed to have blood tests performed He lost his case but still refused to live with or support his wife As a result of her efforts to obtain money from him, he consulted an attorney, who referred him to me The results of the blood grouping tests on the three persons involved were such that I was able to exclude the husband as the father of the child The hr' factor was the basis of the exclusion The young man obtained a verdict in his favor The number of cases recognized by the courts and based on the hr' factor is few This is one of them (case 18 in the table)

Various motives prompt the demand for blood tests Usually, in my series, it was the desire of the husband to obtain a divorce and escape financial obligations In other cases, the husband was convinced that his wife had been unfaithful to him, and he no longer wished to live with her Even if the blood tests fail to exclude the husband as the father, the home probably is broken, because a marriage could hardly be expected to survive a husband's accusation that his wife has been unfaithful In the following case, the motive was unusual

CASE 6—A woman frankly admitted that her child's father was not her husband but her husband's best friend Both the husband and wife had interest in persons other than one another The wife wished, however, to keep possession of the child who had been sired by her lover On the other hand, the husband wished returned to him the house he had bought and had put in his wife's name at a time when they had been living together happily This she refused to do The husband then tried to use the child as a hostage, refusing to relinquish his right to the child unless the wife returned the house to him The blood tests made at the wife's request excluded the husband as the father of the child She kept both the child and the house (case 17 in the table)

COMMENT

The total number of disputed paternity cases irrespective of whether exclusion results is small in comparison to the number of mother, father, and child combinations in which tests are made to determine the possibility of the occurrence of erythroblastosis in a newborn infant Obviously, in this latter group, which is large, paternity is not in dispute A happy and joyous event is in the offing In a group of several thousand such cases in which I have performed blood tests, the percentage of exclusions is virtually nil In fact, this occurred in only one case, and the finding was accidental This is the reason for the acceptance of the tests as evidence As Wiener has pointed out, there are no exceptions to the rules of inheritance of these factors that cannot be explained by either error in technique or illegitimacy In cases in which a dispute is involved, naturally the percentage of exclusions is considerably higher The case in which exclusion of paternity was an accidental discovery was interesting¹¹ The infant required a transfusion, and the laboratory had difficulty in finding a compatible donor The case was then referred to me It was found that the blood contained an anti-M agglutinin, although the child had received no previous transfusions or injections of blood A naturally occurring anti-M factor is rare and unusual Stimulated by scientific interest, I tried to obtain blood samples from the mother, father, and if possible, the grandparents All members of the family except the mother of the child promptly responded It was only after use of great pressure that she reported and permitted the drawing of a blood specimen The fact that I was so insistent about getting the blood of the mother aroused suspicion in the mind of the grandmother At first, she resented my persistence, but, suspecting that the tests were for paternity, she feigned indignation and surprise that I even suspected her daughter of being unfaithful to her husband, however, she soon admitted that she also had been suspicious The test proved that the husband was not the father of the child In most cases in this series, the man involved denied paternity In 13 instances the child was born out of wedlock, while the remainder of the couples involved were married In none of my cases was the maternity of the child questioned

The psychological reaction of the mother at the time the tests are performed is interesting It has varied from complete indifference to complete confidence in the outcome of the tests At times the mother has shown righteous indignation as well as contempt for the man subjecting her and her child to what she considered an indignity In cases in which exclusion of the accused man has been established, it might be expected that there would be some resentment directed toward the examining physician, but in my experience this has not occurred

SUMMARY

The cell envelope of erythrocytes has various characteristics that can be identified by means of specific antisera These characteristics are inherited according to certain laws, and each parent makes an equal genetic contribution to the characteristics in the red blood cell envelope of the offspring These characteristics establish

11 Unger L J Wiener A S and Sonn E B Problems in Blood Grouping in Relation to Transfusion *Am J Clin. Path* 16 45-48 1946

at least nine independent blood group systems, resulting in more than 50,000 different varieties of blood. Thus, the complete blood grouping of a person may some day become as distinctive as his fingerprint. At the moment, for various reasons, only three blood group systems are made use of for medicolegal purposes, namely, the A-B-O, M-N, and Rh-Hr systems, and when they are simultaneously utilized, about 50% of men falsely accused of paternity can establish their innocence

Although these blood tests may exclude paternity, they can never prove it. Nevertheless, on occasion, even non-exclusion, although not proving paternity, has allayed a husband's suspicions and saved a marriage. In a series of 108 cases, 30 falsely accused men were excluded as fathers of the children involved in the dispute. The results were accepted as conclusive and largely determined the outcome in each case.

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SOFT TISSUE CALCIFICATIONS IN CORD LESIONS

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The interest in soft tissue calcifications in cord injuries arose after World War I when a number of wounded veterans exhibited that type of injury. Special hospitals for paraplegics were established. A great number of such patients were studied by a group of French neurologists, orthopedists, and pathologists. As a result of this study an interesting paper was published in 1919 by Mme Déjerine¹ and her co-workers. This was a comprehensive study, and the French authors' observations and deductions as to the clinical, anatomic, and pathological aspects of the soft tissue calcifications in cord injuries still hold true and have served as a basis for later studies. This paper is the only one up-to-date that offers an extensive pathological study of 11 cases.

As described by the French authors, these calcifications show the following essential characteristics: 1. They always appear below the level of the cord lesion. 2. Their points of predilection are in the vicinity of the hip joint, the medial femoral condyle, and the knee joint; the joints proper are never involved; the calcifications may be single or multiple. 3. These calcifications appear early after injury, progress rapidly, and develop in areas where no previous hemorrhage or infection was observed. 4. The pathological anatomy studied in 11 cases showed grossly either compact bony nodules or a fine lacework of spongy bone along the diaphysis. At the hip joint a sort of bony scaffolding in three parts was observed—*anterior, inferior, and sometimes posterosuperior*, the bony bridging thus surrounding the capsule and, in certain cases, greatly interfering with the motion of the joint. Histologically, osteoblasts, cartilage cells, and adult bone were found; the trabeculae, often irregular in distribution and uneven in thickness, circumscribe medullary spaces containing normal blood-forming marrow cells.

Between the two world wars little was written on the subject of soft tissue calcifications in paraplegics. World War II brought a definite revival of interest in this problem, since a great number of paraplegics came under observation. Most of these patients are grouped in special services of the VA hospitals throughout

the country. There they are studied and treated, with special consideration given to the possibilities of their rehabilitation. A number of papers dealing with the problem of soft tissue calcifications have come out of these VA hospitals.² In most of these recent papers the original description of Déjerine and her co-workers has been confirmed as to the frequency, date of appearance, distribution, and pathology of these lesions. Abramson³ stressed again the early appearance of the soft tissue calcifications (as early as 20 days after injury), the same is true of urinary calculi, which occur with great frequency in these patients. The calcifications progress in size only to a certain point, they then become stabilized. In Abramson's series no connection between the site or the severity of the lesion and the location of the calcifications was found.

A total of 52 paraplegics or quadriplegics have been hospitalized up to date in the Chronically Ill Section of the State of Connecticut Veterans Home and Hospital. Nineteen showed partial paralysis and are not included in this study. Thirty-three patients had complete motor paralysis; in 3 cases no roentgenographic studies of the skeleton were available, thus, only 30 cases were studied. The paralysis of the upper extremities when present was never complete, while the paralysis of the lower limbs was total in all 30 cases. Tables 1 and 2 show the distribution according to etiology.

The post-traumatic cases top the list, making up almost 50% of the group with complete paralysis. Among the causes of injury, automobile accidents, diving accidents, and falls in construction work are predominant, in the order presented. Sixteen out of these 30 patients showed evidence of soft tissue calcifications. The distribution of calcifications was quite similar to that described in previous paper, though for some unknown reason no involvement of the knee joint region has been observed as yet. The appearance of these calcifications is quite striking and characteristic, as is illustrated by the roentgenograms (fig 1 and 2). The hip regions were involved in nine cases, the pelvis in three cases, and the thigh and adductor areas each in two cases. Four patients showed calcifications in more than one area. Some of the cases show a very minimal degree of calcification, however, the appearance and location of calcifications in these mild cases place them in the same group.

It has been very difficult to study the approximate date of appearance of these calcifications in these patients.

From the Department of Radiology, State of Connecticut Veterans Home and Hospital.

1. Déjerine, Mme. Cellier, A. and Déjerine, Mlle. Y. *Para-ostéoarthropathies des paraplégiques par lésion médullaire: étude anatomique et histologique*. *Rev. neurol.* Par. 26: 399-407, 1919.

2. Technical Bulletin TB 1 D 503. Veterans Administration, 1948.

3. Abramson, A. S. *Bone Disturbances in Injuries to the Spinal Cord and Cauda Equina (Paraplegia): Their Prevention by Ambulation*. *J. Bone & Joint Surg.* 30 A: 982-987 (Oct.) 1948.

Most of them reached the hospital long after the start of motor paralysis. Thus, in 20 cases this time varied from 1 to 20 years, and in only 10 cases this period was below 1 year. Of these 10, calcifications were observed in 3 cases, urinary calculi, however, were present in 5 out of 10



Fig 1—Roentgenogram of white man aged 50 who had a compression fracture of the 10th thoracic vertebra there was dense irregular calcification lateral to hip joint and along greater trochanter

cases. Curiously enough one of the mildest cases was observed in a patient who had been paralyzed for 20 years. Table 3 shows the distribution according to etiology, in cases with soft tissue calcifications, calcifications

TABLE 1—Distribution According to Etiology

	No of Patients
Trauma	18
Pollomyelitis	8
Multiple sclerosis	6
Hemorrhage *	4
Syphilis	3
Fibrosis †	3
Cord tumors	3
Malignancy	2
Giant cell tumor	1
Degenerative disease	1
Tuberculosis of vertebra	1
Acute myelitis	1
Spina bifida ‡	1
Total	52

* Occurring from the 11th thoracic vertebra to the 8th lumbar vertebra in one case and at the 12th thoracic vertebra in another

† Two cases of arachnoiditis and one of gliosis

‡ Occurring at the level of the fourth and fifth lumbar vertebrae and the first sacral vertebra

were observed in 57% of the post-traumatic lesions. In passing it may be of interest to see that in the same group, with complete paralysis, urinary calculi occurred in 19 out of 30 cases (63.3%).

I was interested, as others before me, in the role played by the level of the cord lesion. For that purpose, only the post-traumatic lesions with a definite spinal cord level were considered, 15 such cases were studied (14

fractures, 1 gun shot wound). It appears that lesions in the cervical region are more consistently accompanied by soft tissue calcifications.

In the 16 cases in which soft tissue calcifications were found, fractures of the skeletal parts below the lesion were seen in 4 patients (table 4). As was mentioned by Abramson and others, these fractures occur after minimal trauma or without apparent trauma. Because of the extreme osteoporosis so frequently present, they can be

TABLE 2—Distribution According to Etiology in Patients with Complete Paralysis

	No of Patients
Fracture dislocation of the spine	18
Pollomyelitis	2
Hemorrhage	2
Cord tumors	3
Multiple sclerosis	2
Arachnoiditis	2
Acute myelitis	1
Malignancy	2
Giant cell tumor	1
Gliosis	1
Gun shot wound	1
Total	50

considered as pathological fractures. The loss of sensation below the level of the lesion prevents the patient from experiencing any pain. Swelling in the region of the fracture may be noticed several days later, or the fracture may be discovered much later as an incidental finding on a film taken for a different purpose. These fractures are



Fig 2—Roentgenogram of white man aged 50 with compression fracture of the 10th thoracic vertebra there was mesh work of calcified densities in soft tissue medial to lower third of femoral shaft probably in the vastus medialis

of interest because they often show an unusual reaction during the so-called healing period. There is an exuberant callus formation, exceeding greatly that seen in fractures

occurring in normal persons In one of the cases a most unusual appearance was observed one month after a supracondylar fracture of the femur (fig 3), the roentgenograms simulated to such a degree a subperiosteal hemorrhage that a tentative diagnosis of scurvy was

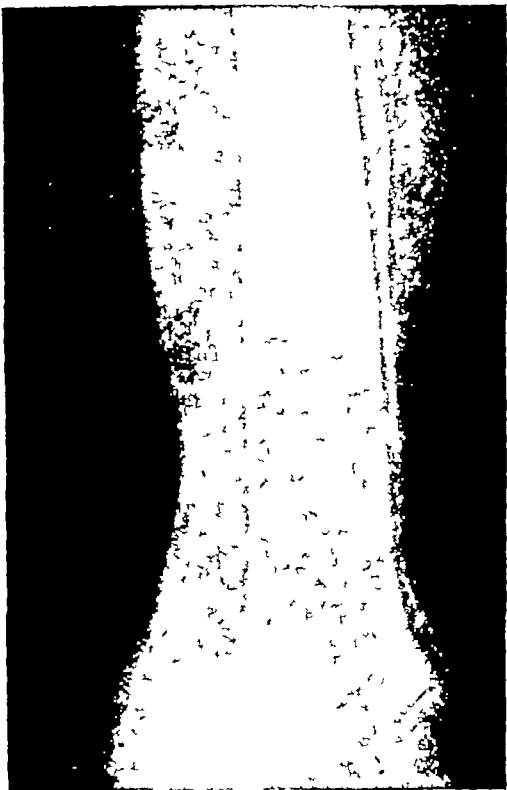


Fig 3—Roentgenogram of white boy aged 19 with fracture dislocation of fifth cervical vertebra appearance of the right knee and thigh after supracondylar fracture simulates a subperiosteal hemorrhage

made Unfortunately I was unable to perform the laboratory tests to confirm this diagnosis Though the diet was not deficient in vitamin C, the patient was given large doses of ascorbic acid Follow-up films, however, did

TABLE 3—Distribution According to Etiology in Patients with Soft Tissue Calcifications

	No of Cases	No with Calcification
Fracture	14	8
Hemorrhage	1	1
Gilosis	1	1
Multiple sclerosis	1	1
Gun shot wound	1	1
Meningioma	1	1
Hodgkin's disease	1	1
Giant cell tumor	1	1
Arachnoiditis	1	1
Total	22	16

not show any regression of these calcifications, and one year later the appearance was that of solid bone Recently this patient sustained a supracondylar fracture on the opposite side Interestingly enough, he showed similar, though less extensive, soft tissue changes (fig 4)

COMMENT

The soft tissue calcification in cord injuries can be differentiated from the much commoner post-traumatic myositis ossificans by the following factors 1 Myositis

ossificans develops after an injury At a certain time the calcification reaches its maximum, and from then on it has a gradually regressive course The differential diagnosis with neurotrophic arthropathies, known as Charcot's joints, is relatively easy, as the pathological bony process runs a parallel course to the disease itself, moreover in Charcot's joints there is increased bony density, while osteoporosis below the level of the transection of the cord is a constant and striking finding The terminology in the literature is rather confusing, since the same lesions have been given the name of paraosteoarthropathies (original name in Déjerine's paper), ossifying fibromyopathy, myositis ossificans, myositis ossi-

TABLE 4—Distribution According to Level in Post-Traumatic Cases

	No of Cases	No with Calcifications
Cervical region	7	6
Upper and mid dorsal	2	2
Lower dorsal	4	2
Lumbar	3	0
Total	16	10

ficans circumscripta neurotica, soft tissue calcification, and ossifications in cord lesions The two latter are the least confusing

The frequency of occurrence of these calcifications was found to be 48.7% by Déjerine¹ Of 48 patients studied by Abramson,³ 22 showed roentgenographic evidence of calcifications, Miller and O'Neill⁴ found only 12 such cases in a group of 289 patients I believe this



Fig 4—Roentgenogram of same patient as in figure 3 one year later dense calcification of right knee and thigh is in the same area as in previous figure In the left leg after a more recent supracondylar fracture a soft tissue calcification again simulating a subperiosteal hemorrhage is present.

low percentage is due to lack of routine x-ray studies of the skeleton rather than to the low incidence of such lesions, in the group of 30 cases of complete paraplegia,

4 Miller L F and O'Neill C J Myositis Ossificans in Paraplegics J Bone & Joint Surg 31 A: 283-294 (April) 1949

16 patients showed soft tissue calcifications, which represents 53.3%

The mechanism underlying the formation of these calcifications has been of great interest to many. Extensive studies of blood chemistry have been rather deceptive, as they did not reveal significant deviation from normal serum calcium, phosphorus, and phosphatase values. Such changes are characteristically lacking in true osteoporosis, or bone atrophy. Déjerine and her co-workers thought that, in addition to periosteal bone formation, metaplasia was probably the process by which the primitive connective tissue was able to generate bone in the soft supportive tissue.

Geldmacher⁵ thinks that tissue loses its character by trophic influence, reverting to an embryonic type. This embryonic tissue in the presence of hemorrhage, infection, and local increase in lime salts finds favorable conditions for the formation of such ossifications. This is suggestive of the opinion expressed by Déjerine. There is, however, a confusing discrepancy. The earlier pathological studies did not prove that either hemorrhage or infection precede the bone formation in these cases. But one cannot completely discard this view as far as excess bone formation around fracture sites in paraplegics is concerned.

The loss of bone density in motor paralysis is well known. The urinary output of calcium is found to be steadily increasing for a period of 30 days after injury, and it maintains a high level, probably as long as the function cannot be resumed (Abramson). The association of osteoporosis with soft tissue ossifications leads to the assumption that excessive calcium mobilization is one of the essential factors predisposing to ossifications,

but other factors must exist, since the ossifications occur only in paralyzed parts of the body. They are never seen in disuse bone atrophy, senile osteoporosis, or other types of osteoporosis. The interruption of pathways in the spinal cord sets the stage for these abnormal calcifications. In normal persons as much or more calcium is being laid down in the bone as is being removed from the bone, in paraplegics more calcium is removed than is being laid down, owing to deficient matrix formation.

The level of the injury may have an influence on the formation of calcification as is suggested in these cases, though of course the series is too small to arrive at any conclusion. In cervical cord lesions, calcifications were found in six out of seven cases, in two cases of upper dorsal cord injury calcifications were present in both cases. Calcifications were found in two out of four lower dorsal cord lesions, in three cases of lumbar cord injury no calcifications were demonstrated. One can only speculate as to the possible mechanism on the basis of these findings, the fact that the sympathetic is not involved in the low dorsal and lumbar injuries may be of significance.

SUMMARY

Thirty cases of complete paraplegia were studied, and soft tissue calcifications were found in 53.3%. Urinary calculi were present in 63.3% of the cases. The lesions of the cervical cord were, in this series, more consistently accompanied by soft tissue calcifications, this being the case in six out of seven cases, in cases of lower dorsal cord lesions calcifications were found in two out of four, in three cases of lumbar cord injury no calcifications were present. Further investigation of soft tissue calcifications is suggested.

5 Geldmacher cited by Miller and O'Neill⁴

TREATMENT OF RHEUMATOID ARTHRITIS WITH AUROTHIOGLYCANIDE (LAURON)

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The discovery of cortisone and corticotropin (ACTH) raised considerable hope that the therapy for the rheumatoid state was at hand. An evaluation of the results, however, particularly after prolonged use, is indicative that there is much to be desired. Although the initial improvement is excellent in all but a few patients, the overall effectiveness is disappointing. When the results are analyzed in terms of the therapeutic criteria of the American Rheumatism Association,¹ functional improvement is very good but the degree of improvement in terms of rheumatoid activity is usually grade 2 (major) or 3 (minor) and rarely grade 1 (complete remission). In view of the high relapse rate, severe withdrawal syndrome, and toxicity with prolonged use, Freyberg and associates² have recently indicated that they are concerned with the question "Will treatment with cortisone be worth while for this patient?" Therefore, the therapeutic measures available for the treatment of rheumatoid arthritis must be reevaluated, and those that over the years have been recognized to be the most effective should continue to be used. Prior to hormonal therapy,

gold preparations were considered to be of greatest value by all but a few investigators.³ The major criticisms raised against the use of gold therapy included (1) the slowness of onset of improvement, (2) the high incidence of patients not responding to initial treatment, (3) the low incidence of arrest of the rheumatoid process, and (4) the occurrence of toxicity, which might be serious in approximately 10% of the patients or fatal in approximately 0.5%. These criticisms are justified on the basis of knowledge available to that time, however, the history of any therapeutic agent or regimen reflects a fundamental principle that has been neglected for gold com-

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1 Steinbrocker O, Traeger C H and Batterman R C. Therapeutic Criteria in Rheumatoid Arthritis. *J A M A*. 140: 659 (June 25) 1949.

2 Freyberg R H and others. Problems of Prolonged Cortisone Treatment for Rheumatoid Arthritis. Further Investigations. *J A M A*. 147: 1538 (Dec 15) 1951.

3 Rosenberg E F. The Present Status of Gold Therapy for Rheumatoid Arthritis. *Proc Staff Meet. Mayo Clin*. 17: 264 (April 29) 1942. Short C L, Beckman W W and Bauer W. Medical Progress. Gold Therapy in Rheumatoid Arthritis. *New England J Med*. 235: 362 (Sept 12) 1946. Steinbrocker O. Personal communication to the author.

pounds This principle holds that any therapeutic measure indicative of merit, regardless of the likelihood of toxicity, stimulates further research to obtain medicaments with greater effectiveness and decreased toxicity If a gold compound were to be developed with either one or both of these possibilities, the greater therapeutic range would extend the usefulness of gold therapy In such a case, the only valid criticism to gold therapy would be the slowness of onset of improvement The decreased toxicity would allow more extensive and prolonged treatment, thus decreasing the incidence of patients who previously did not respond and possibly increasing the number of patients that may have an arrest of the rheumatoid process

This report presents my experiences over an eight year period with a gold compound, aurothioglycanide⁴ (Lauron), which appears to decrease the criticisms of gold therapy During this period, the formulation of the therapeutic criteria in rheumatoid arthritis played an important role in selection of patients for this investigation The effectiveness of aurothioglycanide was analyzed according to these criteria I was a member of the committee delegated to formulate these criteria, and, therefore, I know that this study was conducted with strict adherence to objective control from the moment that therapy was begun until the final analysis of the result The patients selected for this investigation were chosen with particular care It was felt that a well-controlled, small group of cooperative patients representative of each stage of the disease was of greater value than a large series of patients The selected patients were observed for many months, and in some cases years, before gold therapy was begun The possibility of spontaneous remission was thereby minimized Furthermore, patients observed for such a period of time indicated their reliability for continued long-time study and follow-up

SCOPE OF INVESTIGATION

Sixty-nine patients received aurothioglycanide Thirteen of these patients had previously received another gold preparation, but only four of these patients did so under my supervision Eight of the group previously treated were unable to continue using the gold compound because of toxicity Aurothioglycanide was used in three dosage forms, 50, 100, and 150 mg of the compound suspended in sesame oil In a few of the early cases therapy was begun with an aqueous suspension The initial dose varied between 25 and 100 mg, depending on the patient's status of arthritis or experience with previous gold therapy If the disease was early and not too active, the initial dose was likehest to be 25 mg Also, if the patient had experienced toxicity previously to another gold compound, the initial dose for aurothioglycanide was 25 mg The majority of patients began therapy with 50 mg of the compound given intramuscularly at weekly intervals The initial dose was given for at least three weekly injections At the end of this period, if no improvement or toxicity occurred, the dosage was

increased to the next level, 50 mg in the case of the 25 mg initial dose, or 100 mg for the 50 mg dose This dose was then administered at weekly intervals If at the end of 8 to 10 weeks no improvement or toxicity occurred, the dose was again increased The status of the patient was thus reviewed at 8 to 10 week intervals and the dosage adjusted The maximum dose administered to any patient never exceeded 150 mg at weekly intervals The majority of patients received 100 mg as the maximum weekly dose If at the end of approximately six months no improvement occurred, the gold injections were discontinued In those patients who showed improvement during this period, the maximum weekly dose was continued until the improvement was well established and optimum for the patient's stage of arthritis At the end of this period, the patients were divided into two groups The first group of 25 patients had complete cessation of therapy, and they were observed at periodic intervals to note relapse or continuation of improvement If relapse occurred, a second course of therapy was begun utilizing the same system as the initial course Seven patients received an additional course with aurothioglycanide, and two patients subsequently received aurothioglucose

The second group of patients received a maintenance dose of aurothioglycanide, from 50 to 150 mg at two to four week intervals Seventeen patients received this form of therapy This was begun immediately after the initial therapy, which was terminated on an individual basis dependent on degree of improvement In other words, none of the patients received a fixed amount of gold for the initial treatment As soon as it was evident that improvement was sustained, the patient was transferred to a maintenance status, regardless of the amount of gold previously administered Thus, some patients began maintenance therapy within a few weeks of initial therapy, while others required several months of weekly injections before maintenance therapy was begun The dose usually used for maintenance was the maximum dose administered for the weekly injection

The total duration of therapy varied between five weeks and three years Approximately 75% of the patients received the preparation for more than 10 weeks, while approximately 50% of the patients were treated for 20 weeks or longer Twelve patients were treated without interruption for over one year This duration of therapy included the initial therapy as well as the period of maintenance of those patients receiving such therapy The total amount of the gold compound administered, including the amount for initial therapy as well as the amount for maintenance, varied between 200 and 7,100 mg Approximately 70% of the patients received more than 1,000 mg Twenty-one per cent of the patients received more than 3,000 mg Six patients received more than 5,000 mg It is of interest to note that approximately 55% of the patients received 1,000 mg or more for the initial therapy Nine patients received more than 3,000 mg, and one of these was given 4,725 mg In addition to the initial therapy, 17 patients received maintenance doses totaling between 425 and 5,700 mg Seven of these patients received a total of more than 3,000 mg of the preparation for maintenance

⁴ Aurothioglycanide contains 54% gold with the gold linked by means of a sulfur bridge to the organic portion of the molecule The compound is available in sesame oil suspension in a multiple dose vial with a concentration of 50 mg and 150 mg per cubic centimeter Endo Products Inc New York supplied the material and other aid for this investigation

RESULTS

Initial Therapy—In regard to improvement in terms of rheumatoid activity, the patients were analyzed according to the therapeutic criteria¹ adopted by the American Rheumatism Association. The results should be considered as preliminary in nature, since insufficient time has elapsed to evaluate the question of recurrences or arrest of the rheumatoid process. At the termination of the weekly injections of the gold compound, 8 (11.6%) of the 69 patients manifested grade 1 (complete remission) improvement and 18 (26%) patients presented grade 2 (major) improvement. The other patients had either insignificant improvement or no effect on the rheumatoid activity. Thus, 37.7% of the patients had significant improvement. This analysis included all patients regardless of the stage of their disease or whether gold therapy was discontinued owing to toxicity. It is felt that in the latter cases patients should be included as a "no response," since therapy was not effectual. When one considers the response in terms of the stage of arthritis existing prior to therapy, it is apparent that a greater likelihood of improvement can be expected if the disease is treated early. Thus, of the eight patients with early, or stage 1, arthritis, four (50%) had complete remission and an additional two patients had major improvement, giving an over-all effectiveness of 75%. There were 17 patients with stage 2 arthritis, of these 4 (23.5%) had complete remission and 4 (23.5%) had major improvement, giving an effectiveness of 47%. With stage 3 and 4, none of the patients had complete remission. Nine (41%) of the 22 patients in stage 3 had major improvement, while only 3 (13.7%) of the 22 patients in stage 4 presented major improvement.

Maintenance Therapy—The 17 patients treated with maintenance doses are of particular interest. These patients had an initial response and therefore continued therapy. Fifteen (88%) of these patients had a satisfactory end-result, with nine (41%) patients having a complete remission and eight (47%) patients having major improvement at the termination of maintenance. The two patients who failed to respond manifested increasing rheumatoid activity in spite of initial improvement and maintenance doses. Although there are too few cases for accurate statistical analysis, it is the impression that if the patient has stage 1 or 2 arthritis, the likelihood of achieving a good therapeutic response to therapy is excellent if the patient is able to tolerate the preparation and if therapy is continued as a maintenance procedure.

Improvement of Functional Capacity—Improvement in terms of functional capacity is best considered in regard to the patient's original functional capacity. Thus, of the 17 patients in group 2, 8, or 47%, had complete restoration of function. Of the 27 patients in group 3, 5 (19%) had complete restoration and 12 (44%) improved into group 2. Of the 24 patients originally in group 4, functional improvement to group 2 occurred in 8 (33%) and to group 3 in 6 (25%). In general, improvement in functional capacity occurred in 41 (approximately 60%) of the 69 patients. All the patients on maintenance doses showed improvement in functional capacity. It is apparent that functional improvement is likelier to occur in patients treated with gold therapy than is reduction or abolition of rheumatoid activity.

Toxicity—In analyzing the type and incidence of toxicity to aurothioglycanide, it is best to consider first those patients who had no toxicity to gold compounds used previously. Thus, 61 patients of the original group of 69 patients met this criterion. Toxicity of any degree or type was noted during the initial therapy in 15 of these patients, or 24.6%. The toxicity took the form of pruritis alone in three patients, an erythematous rash and pruritis in nine patients, an associated metallic taste in one patient, nausea and vomiting in one patient, and dermatitis exfoliata in two patients. One patient, with a mild rash, also noted edema of the face, leukopenia was discovered on blood cell count examination. In retrospect, the two patients with dermatitis exfoliata should not have had this severe reaction, since in both cases pruritis was noted prior to the rash, however, both cases were studied in the early period of knowledge of the drug.

The time of occurrence of the toxic manifestations reflect the relative safety of the preparation. Only six patients presented toxic symptoms or signs within 10 weeks of therapy. The earliest was five weeks after administration of 300 mg of the drug. The longest period was for the patient in whom dermatitis exfoliata developed after 43 weeks of continuous therapy, or administration of 4,725 mg of the drug. The others ranged from 11 to 28 weeks, with a dosage range of 400 to 2,350 mg. In addition to these 15 patients, toxic manifestations developed in 2 while on maintenance therapy. In one patient, after a total of 38 weeks of therapy, 2,200 mg, pruritis and a metallic taste developed. In the other patient an erythematous rash and metallic taste developed after 137 weeks of therapy, equivalent to 4,000 mg. In two additional patients toxic manifestations developed when a second course of the gold compound was administered. This occurred after 14 and 20 weeks, of 1,100 and 2,075 mg, respectively, administered in the second course. Thus, 19 out of 61 patients, or 31%, not having any previous toxicity to gold compounds, manifested toxicity to aurothioglycanide. The incidence may have been higher if more patients continued their initial therapy or received maintenance doses, however, this problem arises in any group of patients so studied, and it may be concluded that for the usual group of clinic and hospital patients treated with aurothioglycanide the incidence of toxicity is approximately 30%.

The duration of toxicity for the minor signs such as pruritis alone or mild erythematous eruption and pruritis was, as a rule, brief and never exceeded eight weeks. The majority of patients had complete subsidence of their complaints within two weeks of stopping gold therapy. In many cases, the toxic manifestations were transitory, being noted at one clinic visit and not being present at the next visit one week later. The only severe manifestation of dermatitis exfoliata existed for one year in one case and is still present for a period of more than two years in another. There was no correlation of the occurrence of toxicity with the age of the patient, stage of the disease, duration of arthritis, sex, race, or weekly dose. There was some indication that the duration of therapy may be a factor. Excluding the two patients in whom toxicity developed with maintenance doses, it was unusual to see toxicity after 15 weeks of continuous treat-

ment Thus, in 73% of the patients in whom toxicity developed it did so before 15 weeks of therapy

In the group of 69 patients treated with aurothioglycanide, there were 13 patients who had previously received another gold preparation In eight of these patients toxicity had developed previously When subsequently treated with aurothioglycanide toxicity occurred in five of these eight patients, however, in only one case was this toxicity severe In this patient dermatitis exfoliata developed after 35 weekly injections of a total of 3,800 mg The other patients noted mild pruritis and an erythematous rash, which lasted from one to eight weeks In two patients this toxicity developed after four and five weeks of 150 and 300 mg of gold The other two required 12 and 34 weeks, or 1,000 and 2,550 mg, respectively It is of interest to note that three of these eight patients could tolerate large doses of the gold compound without toxicity An additional patient received an oily suspension of aurothioglucose (Solganal B oleosum) subsequent to aurothioglycanide, and toxicity developed to the former but not to aurothioglycanide Thus four out of nine patients receiving both preparations could tolerate aurothioglycanide but not aurothioglucose

Aurothioglucose—Through the cooperation of Dr Joseph Bunim, chief of the arthritis services, Third Medical Division (New York University), Bellevue Hospital, it was possible to obtain the records of a group of rheumatoid patients treated with aurothioglucose These patients, in addition to those patients treated with this gold compound under my supervision, comprised a total group of 44 patients Since the majority of these patients were observed by other physicians, a comparative control of the degree of improvement is not possible, and this aspect of treatment of this group will therefore not be presented The data are pertinent only for the toxic manifestations The 44 patients were treated according to a method similar to that in the aurothioglycanide group, except that maintenance doses were not given The initial dose, as a rule, was 10 mg given intramuscularly and at weekly intervals This was increased until the patient was receiving 50 mg as a maximum dose The duration of treatment varied between 2 weeks, for two patients in whom toxicity developed within this period, and 76 weeks The majority of patients were treated for 12 to 24 weeks The total amount of aurothioglucose administered varied between 20 mg (for the two patients in whom immediate toxicity developed) and 3,090 mg Approximately 50% of the patients received 900 mg or more

Toxic manifestations were noted in 24 of these 44 patients, or an incidence of 54.5% This occurred in from 2 weeks to 27 weeks of continuous therapy As in the case of aurothioglycanide, in the majority, or 66%, of the patients in whom toxicity developed it did so before the 15th week of therapy, however, unlike this preparation, it did so before the 5th week in four patients The amount of aurothioglucose administered at the time of toxicity varied from as little as 20 mg to as much as 1,365 mg In approximately 58% of the patients toxicity developed before 500 mg of the drug was given A comparative incidence for aurothioglycanide occurred at the 1,000 mg mark

The type of toxicity was also severer with 19 out of the 24 patients manifesting an erythematous eruption Three patients manifested ulcerative stomatitis or buccal lesions One patient had a severe anemia, and another purpuric manifestations Another patient presented albuminuria The duration of toxicity was also greater than that seen with aurothioglycanide Although several patients had transitory signs, many patients had continuation of the eruption for several weeks and months

COMMENT

The treatment of rheumatoid arthritis with gold compounds requires the application of fundamental principles universal for all forms of therapy The first consideration is the disease itself It is a progressive disorder that manifests itself by exudative phenomena of articular and extra-articular structures The resultant pain, functional disability, joint destruction, and deformities challenge the efficacy of any therapeutic measure The problem is twofold The most important factor is to utilize "specific" agents to decrease, abolish, and prevent recurrences of the rheumatoid process or activity Concomitant with specific medications, analgesics, sedatives, supportives, physical therapy, and orthopedic procedures as palliative and corrective measures could be utilized

In regard to specific therapy, the efficacy of gold preparations has been the subject of considerable controversy It would appear that the exudative process as a manifestation of rheumatoid activity may be decreased or abolished in many patients by the use of gold compounds, however, past experience with gold compounds has disclosed several facts pertaining to their use that require careful analysis First, improvement in the rheumatoid process is slow to occur Several weeks and occasionally months of continuous treatment are necessary before any significant improvement is manifested by the patient This latent period is specific for the individual patient The length of time required for its occurrence cannot be predicted in advance, nor can it be shortened by more frequent injections On the contrary, the latter practice usually increases the likelihood of toxicity From the patient's point of view, this latent period is most discouraging, since pain and disability are unchanged From the physician's or investigator's point of view, the slow improvement cannot be distinguished from the natural remission that may occur The results in any particular patient are therefore open to question, however, a statistical analysis of groups of rheumatoid patients is indicative that natural remission is not frequent and that with gold compounds this slow improvement is noted in the majority of patients

Second, the degree of improvement is dependent on the stage of the disease Gold therapy is most effective in the early phases before extensive joint destruction, deformities, and contractures are manifest This lack of response to therapy for the advanced patient should be given due consideration in the final analysis of any treatment for any chronic disease Lumping of results with inclusion of all stages of the disease is often misleading and the value of the therapy hidden by statistical implications In the present study, approximately 60% of the patients were in stage 3 or 4 of their arthritis The results, therefore, do not appear significant because the majority

of patients did not manifest grade 1 or 2 improvement, however, the results in the early stages of the disease leave no doubt that gold compounds are effective. It is claimed that the over-all effectiveness is no greater than what one would expect in a group of patients untreated for 10 years. What is not clarified is that these untreated patients may, at the end of 10 years, be free of the rheumatoid activity but at the expense of a crippling, deformed, usually bedridden state, whereas the treated group will have an arrest or major improvement of their disease relatively early in the treatment period so that further progression to the irreversible, crippled state is prevented.

One of the major criticisms raised against gold therapy is that with its cessation the majority of the patients will have a recurrence of the rheumatoid process. This observation was based on the results of the treatment of patients by courses of the drug. Recurrences have been eliminated by continuing therapy with maintenance doses. Not only the initial improvement will be sustained but also the likelihood of flare-ups of the rheumatoid activity occurring during and after therapy will be diminished.

The question of attaining a cure rather than an arrest of the rheumatoid process with gold compounds has still to be decided. The previous use of gold preparations by means of courses was unsatisfactory in this regard, but by continuous maintenance doses it may be possible to attain a cure in those patients in the early stages of their disease. This phase of treatment is still under investigation, but the results are more encouraging than heretofore. Once improvement is well established and maintained, it is exceedingly rare for such a patient to manifest progression of his disease.

The degree of improvement attained with maintenance therapy is dependent on the stage of the disease, degree of rheumatoid activity, response during initial phase of treatment, and posology in the use of the gold compound. Experience with aurothioglycanide is indicative that with rare exception if the patient responds during the initial period of treatment this response will be progressive and sustained. The likelihood of its occurrence is greatest if the patient has stage 1 or 2 arthritis. The maintenance dose may have to be adjusted on an individual basis dependent on the completeness of response. Adjustment may be necessary in the size of the dose as well as intervals between injections. With stage 3 or 4 arthritis, the over-all response may be incomplete in that the patient continues to present exudative swelling, pain, and disability. It must be recognized that this response may be maximum for that patient and that complete remission cannot be attained, however, with maintenance doses it is possible to sustain the degree of improvement that has been achieved and thus in many instances keep the patient in a more comfortable state.

The toxicity of gold compounds has been the major disadvantage to their use. There is no question that the toxicity may be serious and even fatal, but it must be kept in mind that the reluctance of the medical profession to use gold preparations is based on the early formative years in their investigation. Not only were the original gold preparations more toxic than those avail-

able today but also insufficient knowledge was available to guide the physician in prophylactic measures or recognition of the early signs of toxicity that were not serious unless therapy was continued in spite of their presence. These two factors resulted in a very high incidence of serious toxicity in the early investigations. The more recent use of gold preparations has been relatively free of severe toxic manifestations except in the rare patient with an idiosyncrasy. Recognition of early signs, such as pruritis, any rash, metallic taste, or albuminuria, and discontinuation of therapy immediately with their occurrence has proved most satisfactory in avoiding serious toxicity. As a rule, therapy can be continued in many patients on this subsidence, but with the use of smaller doses.

Aurothioglycanide, in my experience, possesses the lowest potentiality for producing toxicity of any available gold preparations. This does not mean that toxicity cannot occur with its use. On the contrary, the same precautions are necessary in its use as with other gold compounds, however, the likelihood of serious toxicity is much less, and patients who cannot tolerate other gold compounds may continue therapy with aurothioglycanide. The question arises whether the insolubility of this gold preparation contributes to the lessened toxicity. It is conceivable that the intramuscular deposition of an insoluble gold compound might be less toxic because of delayed or lessened absorption, however, although absorption may not be complete, it does occur. The clinical response occurs at a time experience has taught us to expect with the use of soluble gold compounds. Furthermore, the occurrence of toxicity to this gold compound is itself evidence of absorption.

Many of the toxic manifestations seen with gold therapy may be the result of an idiosyncrasy rather than an actual cumulative gold intoxication. This is proved by the following factors: 1. Patients who manifest toxicity do so relatively early during the initial treatment period. Toxicity is most frequent before the 15th week of treatment and is uncommon thereafter. 2. It is unusual for the patient to present toxicity during the maintenance phase of therapy. 3. Patients previously treated with gold compounds who require additional therapy must begin cautiously with smaller than usual doses because of an increased likelihood of toxicity.

It is my belief that aurothioglycanide is not as toxic as other gold compounds because sensitization to its entire chemical moiety is less likely to develop. The lower incidence of toxicity with this gold preparation has thus increased the therapeutic range of this particular compound. It is for this reason that therapy could be continued for longer periods of time and achieve, if possible, a therapeutic result with prolonged therapy. The results with maintenance doses have been very satisfactory. The likelihood of attaining complete remission or arrest of the stage 1 or 2 rheumatic arthritis is now excellent as long as treatment in courses is avoided and maintained therapy instituted as soon as improvement is manifest.

CONCLUSIONS AND SUMMARY

The effectiveness and toxicity of aurothioglycanide were studied in a selected group of 69 patients with rheumatoid arthritis. Twenty-six patients (37.7%),

regardless of their stage of the disease, had a significant improvement with the initial phase of therapy. This, however, is misleading, since patients with advanced disease are less capable of response. Fifty-six per cent of the patients with early (stage 1 or 2) arthritis showed complete remission or major improvement at the termination of initial therapy. The initial response was further enhanced by maintenance therapy with aurothioglycanide, since 15 out of 17 (88%) patients so treated had a satisfactory end-result. Maintenance after initial im-

provement is the recommended method for gold therapy, since the likelihood of attaining complete remission or major improvement is excellent. The incidence, type, severity, and duration of toxic manifestations are indicative that aurothioglycanide is less toxic than other available gold preparations. The greater therapeutic range of aurothioglycanide removes, to a great extent, the major criticism against gold therapy, leaving the slowness of improvement as the only valid objection.

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PRELEUKEMIC ACUTE HUMAN LEUKEMIA

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During the past three years we have had the unusual opportunity to observe 12 patients for as long as 27 months prior to the development of acute myelogenous or stem cell leukemia. During the preleukemic phase, the transitional phase to acute leukemia, as well as thereafter until death, their clinical courses were recorded, frequent complete peripheral blood cell counts were made, and serial biopsies of the bone marrow and, in some cases, biopsies of liver and spleen were obtained.

Interest in the preleukemic phase of human acute leukemia has been heightened by recent studies in induced mouse leukemia. In both humans¹ and mice, the disease is usually rapidly fatal, with only short remissions sometimes produced by steroid or antifolate acid therapy. In the mouse, however, treatment with cortisone in the preleukemic phase of the disease has been shown to decrease the incidence of leukemia induced by x-ray² and possibly that induced by methylcholanthrene.³

This study is presented because it concerns the preleukemic phase of human acute leukemia, knowledge of which is at best fragmentary, and because studies on mouse leukemia have pointed to the possibility of a therapeutic approach to what is still a rapidly and uniformly fatal disease. This paper emphasizes the clinical course of various patients. In a companion publication, emphasis will be placed on the histogenesis of human acute leukemia.

It was sometimes difficult to determine the exact time at which a particular patient might be classified as being leukemic. One might object to a concept that differentiates a preleukemic from a leukemic phase in a patient who dies of leukemia on the grounds that the patient

should be considered as having leukemia from the onset of symptoms clearly related to his final illness. As already mentioned, the recent studies on mouse leukemia point to a possible difference between what we choose to call the preleukemic and the leukemic phase.⁴ Furthermore, there are clinical grounds on which this differentiation may be made. In the preleukemic phase, the characteristic enlargement of any of the hematopoietic tissues, except in two patients, was not demonstrable. In our experience, as well as in that of others, one may encounter middle-aged women with neutropenia,⁵ other patients with refractory anemia⁶ or thrombopenia,⁷ and even those with large numbers of immature cells (including stem cells) in the peripheral blood,⁸ in whom leukemia does not develop but who recover from or die of some other disease. Herz's patient^{8a} had a white blood cell count of 24,000, with 55% stem cells, but leukemia did not develop. In addition, the histopathology of the bone marrow, liver, and spleen seen in our patients in the preleukemic phase is similar to that described in other conditions, namely neutropenia, purpura, and refractory anemia.⁹

Consequently, the diagnosis of acute myelogenous, or stem cell, leukemia has been made only at the time that the patients presented most of the classic criteria of acute leukemia, special attention being paid to the peripheral blood and especially to the hematopoietic tissues.

The presence of lymphadenopathy of even a slight degree, especially if combined with splenomegaly and hepatomegaly, has been considered important in making a diagnosis but, as will be seen, occurred quite late in the course of the disease. The demonstration of immature cells is of utmost importance but, as has already been shown, is far from pathognomonic of leukemia. Replacement of normal bone marrow elements by sheets of stem cells and promyelocytes has been the most important criterion selected to make a diagnosis of acute leukemia, since, even in the most intense leukemoid reaction, fairly large amounts of erythroblasts, megakaryocytes, and fat may be demonstrated. Similarly, a diagnosis may be made if foci of stem cells and early granulocytes are demonstrable in specimens of the liver and spleen.

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MATERIAL

Table 1 shows certain characteristics common to the 12 patients that were the basis for this study. All 12 were in the older age group, and 9 were postmenopausal women, the 10th woman had begun to complain of hot flushes. Various allergies were noted by six women. Each patient had as a major complaint at onset some symptom referable to a deficiency of bone marrow function, such as weakness and fatigue, infection, and a hemorrhagic phenomenon, singly or in combination. In all of the cases, except four in which the date of diagnosis of leukemia could not be set accurately and one (case 10) in which the diagnosis is still in doubt, the preleukemic phase was at least three times longer than the leukemic phase. Except for two cases and case 5, in which the leukemic phase lasted nine months, the patients' courses were extremely acute, almost explosive, once the leukemic phase became manifest.

Numerous biochemical determinations were obtained during the preleukemic phase, but, for the most part, they were normal or reflected temporary disturbances in fluid balance. Many of the patients had subclinical

a few petechiae on the legs, and a liver palpable 2 cm below the costal margin. Hemoglobin level was 4.3 gm per 100 cc, platelets, 96,000 per cubic millimeter, reticulocytes, 1%, and white blood cells, 1,900 per cubic millimeter, with 78 neutrophils, 20 small lymphocytes, and 2 monocytes. Six erythroblasts per 100 white blood cells were present in the smear. Bleeding time was 4 minutes 30 seconds and clotting time 18 minutes. Sections of a bone marrow needle biopsy revealed a densely erythroblastic marrow with maturation arrest and marked decrease in the number of granulocyte precursors and neutrophils. A biopsy of the liver was normal except for a slight increase in iron in parenchyma cells. The patient was discharged with a diagnosis of primary refractory or acquired hemolytic anemia on Aug 17, 1949, 10 months prior to her death and 6 months prior to the time a diagnosis of leukemia was made.

The progressive anemia was treated by blood transfusions. Two months prior to development of a leukemic state, the white blood cell count was 2,500, and occasional stem cells (myeloblasts and monocytoblasts) began to appear in the peripheral blood. The diagnosis of acute leukemia was made in February, 1950, about four months prior to death. The liver and spleen were still not palpable, and the lymph nodes were not enlarged, but a marked hemorrhagic diathesis and pharyngitis had developed. X-ray therapy was given but did not change the course of the disease.

By May, 1950, the white blood cell count reached 35,000 and then 50,000 per cubic millimeter, with many myeloblasts

TABLE 1—Clinical Data on Twelve Patients

Patient	Age	Sex	Years Post menopause	Allergic History	Onset	Duration of Disease (Mo)		
						Total	Preleukemic	Leukemic
1	50	F	2		Anemia	21	17	4
2	62	F	20	Vesicular rash	Anemia	19	17½	1½
3	47	F	Hot flushes	Drug	Neutropenia	8	7½	½
4	46	F	Menopausal		Purpura	30	10-90	4-20
5	40	F	½		Purpura	9 yr ?	27	0
6	64	F	10	Asthma	Neutropenia	11	10	1
7	44	F	7 †	Drug	Anemia and neutropenia	12	11	1
8	75	F	30 ‡	Urticaria	Neutropenia	2	2½	½
9	33	M			Anemia	6	5	1
10	57	F	6	Drug	Purpura	60		
11 †	61	M			Anemia	6	5	1
12	58	F	7		Neutropenia	12	11	1

* Patient is still alive but has not entered leukemic phase
† Tuberculosis an additional complication
‡ After hysterectomy

jaundice, but the jaundice was not a typical hemolytic type, with elevation of the indirect bilirubin. The patients in whom fecal urobilinogen determinations were obtained usually had an elevated hemolytic index even during periods when they were not jaundiced. The protein and albumin-globulin ratio was either normal or showed only a borderline elevation of the globulin and depression of the albumin.

REPORT OF CASES

CASE 1—This 56-year-old widowed housewife was well until the development of diabetes in 1943. In July, 1948, she had a normal white blood cell count and hemoglobin level. In October, 1948, 17 months before a diagnosis of leukemia was made and 21 months before her death, an initial low hemoglobin level of 11.6 gm per 100 cc was found. By November 1948, the hemoglobin level had dropped to 10.4 gm, but the white blood cell and differential counts were still normal. In February, 1949, she first began to complain of fatigue and vague abdominal pains. After that, progressive neutropenia and anemia developed, and the woman lost 15 lb (6.8 kg). She was admitted to the hospital on Aug 2, 1949. There had been no known exposure to toxic agents. Physical examination on admission revealed nothing but mild diabetic retinopathy,

and myelocytes. This was one month before death. Hepatomegaly, splenomegaly, generalized purpura, and nodular skin infiltrations developed. Shortly prior to the patient's death on June 6, 1950, the hemoglobin level was 8 gm per 100 cc, platelets 27,000, and the leukocyte count, 208,000 per cubic millimeter, consisting only of stem cells and promyelocytes. At autopsy, the gross abnormalities were generalized purpura and subcutaneous nodules. The liver weighed 850 gm, the spleen weighed 750 gm, and numerous nodes 0.5 to 0.8 cm in diameter were found. On microscopic examination, infiltration of the bone marrow, spleen, heart, lymph nodes, skin nodules, kidney, and adrenals by large stem cells was found.

CASE 2—A 62-year-old housewife had had a vesicular skin rash for 20 years. In 1943 a duodenal ulcer developed. From 1948 until July, 1950, sporadic red and white blood cell counts, hemoglobin determinations, and differential counts were normal. At that time, 17½ months prior to the diagnosis of acute leukemia and 19 months prior to death, the hemoglobin level was 12.7 gm and the red blood cell count was 3,800,000. Physical examination revealed nothing abnormal. By April 1951, the hemoglobin level had dropped to 11.9 gm per 100 cc, the red blood cell count to 3,500,000, and the white blood cell count to 5,600 per cubic millimeter. From this time on there was progressive weakness. On Aug. 30, 1950, the hemoglobin level was 8.7 gm and the red blood

cell count was 2,800,000, in spite of repeated transfusions. The white blood cell count was 2,250 per cubic millimeter, with a normal differential count, and there were 159,000 platelets and 7.4% reticulocytes. A bone marrow biopsy showed a marrow at the upper limit of normal cellularity (40% fat). The marrow was primarily erythroblastic, with many erythroblasts in mitosis, and there was maturation arrest of the granulocytes so that only rarely were any adult neutrophils seen. Stem cells were slightly but significantly more numerous than normal. Iron granulation was excessive. In view of the patient's claim that she had been jaundiced, a diagnosis of acquired hemolytic anemia was considered. Because of neutropenia and bone marrow findings, toxic agranulocytosis was also considered.

Anemia continued intractable, malaise and anorexia developed, and, in November, 1951, marked purpura was first noted. On physical examination there was no lymphadenopathy, hepatomegaly, or splenomegaly, but a single ecchymosis was found. Smears of a bone marrow aspiration on Nov. 5, 1951, were extremely cellular and were composed of over 50% stem cells. The hemoglobin level was 9.9 gm (after transfusions), platelets, 57,000, reticulocytes, 0.3%, and there was leukopenia, 2,500 white blood cells, with a differential count of 2 neutrophils, 66 small lymphocytes, 1 monocyte, 26 myeloblasts, 1 myelocyte, 4 metamyelocytes, and 1 erythroblast. Since the diagnosis of acute leukemia was unequivocal, administration of corticotropin (ACTH) was begun on Nov. 20, 1951, but had to be stopped because of a psychosis. Thereafter, in spite of intermittent cortisone therapy, the hemorrhagic tendency became worse, fever continued at 40°C, and anemia was not alleviated by transfusions. Jaundice, extreme purpura, and shotty lymphadenopathy developed, but there was no splenomegaly or hepatomegaly. The patient died on Dec. 10, 1951, one and one half months after the diagnosis had been made and 19 months after the start of the preleukemic phase. Permission for autopsy was refused.

CASE 3—The patient was in good health until generalized pains and nervousness developed in December, 1948. In April, 1949, the woman was treated for amebiasis and all through 1949 received a wide variety of medicaments for mild joint and abdominal pains. In September, 1949, an erythematous rash developed on her shoulders and legs. She had lost 50 lb (22.7 kg) by the time she was first seen on Jan. 16, 1950, seven and one half months prior to the diagnosis of acute leukemia and eight months prior to death.

Physical examination at that time revealed nothing except a few petechiae and ecchymoses and positive evidence of the Rumpel-Leede phenomenon. Hemoglobin level was 13.5 gm per 100 cc, red blood cell count, 4,100,000, platelets, 195,800, reticulocytes, 1.4%, and white blood cell count, 900 per cubic millimeter, with a differential count of 21 neutrophils, 2 eosinophils, 71 small lymphocytes, and 6 monocytes. At the end of January, 1950, acute thyroiditis developed with a rise in the white blood cell count to 2,400, with only 14 neutrophils, 81 small lymphocytes, 2 eosinophils, 3 monocytes, and 5 erythroblasts. The hemoglobin level was 13 gm, platelets, 201,000, and reticulocytes 2.2%. Bone marrow on Feb. 8, 1950, showed hyperplasia of granulocyte precursors but a normal number of erythroblasts and megakaryocytes. An epinephrine test was performed, and the leukocyte count rose from 1,800 to 5,000 per cubic millimeter, the platelets were unchanged after 30 minutes. Diagnosis of bromidism, acute thyroiditis, and hypersplenism was made. Toxic neutropenia and early acute leukemia were considered improbable.

Between February and the beginning of August, 1950, three blood cell counts showed no significant change. The patient continued to feel well. During the first week of August, gingivitis stomatitis, and pharyngitis developed. Physical examination revealed only ulcerative pharyngitis and petechiae and ecchymoses on the woman's legs. Hemoglobin level was 9 gm, red blood cell count, 3,200,000, platelets, 77,000, reticulocytes, 1.1%, and white blood cell count, 1,250, with a differential count of 1 neutrophil, 1 eosinophil, 80 small lymphocytes, and 18 myelocytes. On Aug. 23, 1950, the bone marrow had a normal number of erythroblasts, stem cells were increased, and there was maturation arrest and hyperplasia of granulo-

cyte precursors. The patient was treated with aureomycin, but right lower lobe pneumonitis developed. Hypersplenism was still thought to be the most logical diagnosis.

On Sept. 1, 1950, surgical biopsy of the sternum was obtained. The marrow was almost solidly cellular. There were solid sheets of stem cells, with occasional promyelocytes, neutrophils were extremely rare, erythroblasts were moderately decreased, and megakaryocytes were numerous. The spleen was first palpated on that day.

Because of increasing toxicity, purpura, and pneumonitis the patient underwent an emergency splenectomy on Sept. 3, 1950, 13 days before death, with a diagnosis of hypersplenism, although early acute leukemia was considered. Sections of the spleen showed hyperplasia of lymphatic nodules composed of medium to large lymphocytes. Occasional stem cells were seen in the red pulp. A biopsy of the liver revealed an increase in the number of large and small lymphocytes in the portal areas.

On Sept. 5, 1950, the hemoglobin level was 14.4 gm (after massive transfusions), red blood cell count, 5,000,000, platelets, 86,900, and white blood cell count, 1,640 per cubic millimeter, with a differential count of 1 neutrophil, 1 eosinophil, 10 small lymphocytes, 83 myeloblasts, 5 promyelocytes, and 89 erythroblasts. Giant platelets were seen. The leukocyte count rose to 6,500 per cubic millimeter but consisted almost solely of stem cells and promyelocytes and only occasional erythroblasts. Marked purpura and increasing jaundice developed, and the patient died on Sept. 16, 1950, in spite of treatment with corticotropin and cortisone.

The gross findings at autopsy were marked jaundice, generalized hemorrhages, and decubitus ulcers. The liver weighed 2,200 gm, but there was no significant lymphadenopathy. The marrow was extremely cellular and contained sheets of myeloblasts and promyelocytes, with occasional erythroblasts and adequate megakaryocytes. Microscopically, the liver was similar to the specimen obtained at operation. No other evidence of leukemia was noted.

CASE 4—This 46-year-old woman first noted menorrhagia and metrorrhagia in January, 1949, 30 months before she died and 10 to 26 months before we made the diagnosis of acute leukemia. Generalized purpura developed in September, 1949, and a diagnosis of thrombocytopenic purpura was considered. Findings on physical examination in October, 1949, were normal except for pallor, ecchymoses, and purpura, but the Rumpel-Leede phenomenon was absent. Blood cell studies indicated 8.3 gm of hemoglobin, 3,300,000 red blood cells, and 11,300 white blood cells, with a differential count of 41 neutrophils, 34 small lymphocytes, 16 myeloblasts, 4 myelocytes, and 5 metamyelocytes. Sections of bone marrow aspirated on Oct. 20, 1949, revealed a solidly cellular marrow, with extreme hyperplasia of the granulocytic and erythroblastic lineages but only slight maturation arrest in the former. Stem cells and mitotic cells were not numerous. No diagnosis was made. Although subacute myelogenous leukemia and hypersplenism were considered, it was felt that the erythroblastic hyperplasia was too intense to warrant the former diagnosis. Splenectomy was seriously considered.

X-ray sterilization was completed in November, 1949, because of uncontrollable vaginal hemorrhage. At that time, the platelet count was 133,000 per cubic millimeter. The presence of 8.7% reticulocytes and 5 erythroblasts was thought to contradict the diagnosis of acute or subacute leukemia. The only new finding was swollen submaxillary glands probably related to hemorrhagic gingivitis. Because of the latter, the patient received x-ray therapy to the gums in January and February, 1950, with only negligible benefit.

She continued to experience frequent hemorrhages, and, on Jan. 6, 1950, another marrow specimen was similar to the first, but 10 days later a specimen contained fewer erythroblasts. Findings on physical examination were normal except for an extreme generalized hemorrhagic tendency. Bleeding and an intermittent fever continued in spite of antibiotics, toluidine blue and local absorbable gelatin sponge (Gelfoam). The hemoglobin level was 7.9 gm per 100 cc, and red blood cell count was 2,700,000 in spite of repeated transfusions. There were 81,120 platelets, and the white blood cell count had risen to 14,000 per cubic millimeter, with 50 neutrophils,

6 medium lymphocytes, 30 small lymphocytes, 1 eosinophil, 5 myeloblasts, 4 myelocytes, 4 metamyelocytes, and 5 erythroblasts

The marrow on Feb 14, 1950, was still solidly cellular but contained more adult neutrophils and showed at least adequate erythropoiesis and megakaryocytopoiesis. The white blood cell count was 25,300, with 37 neutrophils, 9 lymphocytes, and 16 stem cells, 4 promyelocytes, 18 myelocytes, 14 metamyelocytes, 2 stab cells, and 5 erythroblasts. There were 55,000 platelets per cubic millimeter. The diagnosis of subacute myelogenous leukemia was considered seriously but not accepted because of the marked erythropoietic activity of the marrow as well as the complete lack of lymphadenopathy, splenomegaly, or hepatomegaly.

In March, 1950, extraction of all of the patient's teeth resulted in extreme hemorrhage and gingival hyperplasia. Repeated blood cell counts were unchanged. In April, 1950, 17 months prior to death, the gingival hyperplasia was so extreme that it was felt that subacute myelogenous leukemia was the most likely diagnosis. The gingival hyperplasia responded dramatically to administration of corticotropin, and there was some improvement in the hemorrhagic tendency.

The patient's course was marked by exacerbation and remission of the hemorrhagic diathesis, with partial control by steroidal therapy and a white blood cell count that varied from 3,000 to 50,000 per cubic millimeter, with as many as 16 erythroblasts in the peripheral blood. Minimal and questionably significant lymphadenopathy was first detected in November, 1950, 10 months before death. Definite abnormalities, such as lymphadenopathy, hepatomegaly, and splenomegaly, were first noted in May, 1951, only four months before the woman died. A bone marrow biopsy specimen obtained at that time was inadvertently lost.

The patient died on Sept 9, 1951. Postmortem examination was limited to needle biopsy of the liver, spleen, and bone marrow and to excision of a supraclavicular node. All specimens showed marked infiltration with many stem cells and some promyelocytes. Rarely, a few erythroblasts and megakaryocytes were found in the marrow. The marrow was completely unlike that obtained at the previous biopsy on Feb 14, 1950, when the diagnosis of subacute myelogenous leukemia was rejected primarily because of the marrow histopathology.

Because of the lack of tissue studies, it is hard to fix the date of development of an unequivocal leukemic state, but this probably occurred between February, 1950, 20 months prior to death when there was a white blood cell count of 25,000 per cubic millimeter, with 52% immature cells and 55,000 platelets, and May, 1951, 4 months before death, when lymphadenopathy, splenomegaly, and hepatomegaly were noted.

CASE 5—This emotionally unstable 50-year-old woman noted that she began to bruise easily in 1941, 9 years before death. Marked exacerbation of this symptom occurred in 1947, three years before her death and two years before diagnosis of subacute leukemia was made. By March, 1947, menorrhagia required 20 pads for each period. Physical examination on July 1, 1947, revealed only marked purpura. The Rumpel-Leede phenomenon was not present. Hemoglobin level was 13.8 gm per 100 cc, erythrocyte count, 3,800,000, reticulocytes, 0.1%, and white blood cell count, 5,800 per cubic millimeter with a normal differential count. Bleeding and clotting times and a bone marrow specimen were normal. A diagnosis of vascular (nonthrombocytopenic) purpura was made. In March, 1948, the patient was given a blood transfusion at another hospital because of hemorrhage that followed dental extraction.

She was seen three times in May, 1948, complaining of pain in her knees after a course of shock therapy. Results of a physical examination were unchanged except for evidence of fluid in the right knee joint. The Rumpel-Leede phenomenon was still absent. Peripheral blood cell counts showed 9 gm of hemoglobin, 3,100,000 red blood cells, 203,000 platelets, and 4,700 white blood cells, with 30 neutrophils, 64 small lymphocytes and 6 monocytes. Bleeding and clotting times were normal. The marrow was still normal with a possible

hyperplasia of immature granulocytes that was not intense enough to even warrant a diagnosis of a leukemoid reaction. No new diagnosis was made.

In October, 1949, the woman returned because of severe menorrhagia, metrorrhagia, epistaxis, and melena. Physical examination again revealed nothing abnormal. There were 26,000 white blood cells, 7.9 gm of hemoglobin, 1,700,000 red blood cells, 7.6% reticulocytes, 48,000 platelets, and a differential count of 7 neutrophils, 61 small lymphocytes, 21 stem cells, 4 promyelocytes, 4 metamyelocytes, and 3 erythroblasts. The bone marrow was indicative of subacute myelogenous leukemia. The diagnosis was, therefore, made 9 months before the patient died and 27 months after a flare up of a hemorrhagic process that had already existed for nine years. Splenomegaly and hepatomegaly were first detected in March, 1950, only four months prior to death and five months after the diagnosis of subacute leukemia was made. Her course was steadily downhill in spite of radiophosphorus therapy and supportive measures. She died in July, 1950.

At autopsy multiple ecchymoses and petechiae, generalized lymphadenopathy, and splenomegaly were seen. There was leukemic infiltration of the bone marrow, liver, spleen, lymph nodes, heart, stomach, urinary bladder, thyroid gland, uterus, and, to a lesser extent, the kidney. These tissues were indicative of acute to subacute myelogenous leukemia on microscopic study.

CASE 6—A 54-year-old woman had had asthma for 27 years. In 1935, she underwent hysterectomy. In July, 1947, she had pneumonia that was treated without complication with penicillin and sulfadiazine. The hemoglobin level and red blood cell count were normal, and there was a leukocytosis, 15,720 white blood cells per cubic milliliter, with 91% neutrophils. She was hospitalized in March, 1948, for an acute asthmatic attack and possible bromide intoxication. Physical examination showed nothing abnormal except for evidence of asthma. Hemoglobin level, red and white blood cell counts, and differential count were normal.

By April, 1950, 11 months before death and 10 months prior to the time a definite diagnosis was made, a white blood cell count of 3,600 per cubic millimeter, hemoglobin level of 13.1 gm per 100 cc, and a red blood cell count of 4,200,000 were recorded. The patient continued to feel well until she noted epistaxis early in December, 1950. By the end of that month, she experienced weight loss, generalized bleeding tendency, continuous fever, and weakness. The findings of physical examination on Feb 3, 1951, were normal except for ecchymoses. There were 9 gm of hemoglobin, 2,600,000 red blood cells, 23,100 platelets, and 450 white blood cells. The differential count showed 7 neutrophils, 59 small lymphocytes, 1 monocyte, 4 myelocytes, 29 stem cells, and 9 erythroblasts. The marrow obtained on Feb 5, 1951, one month before death, was fatty with only occasional stem cells and promyelocytes. A diagnosis of toxic aplasia or aplastic anemia was considered, with early acute leukemia a possibility.

The patient continued a downhill course with repeated chills and fever, progressive hemorrhagic tendency, and, in spite of frequent transfusions, progressive anemia. The white blood cell count varied between 2,000 and 400 per cubic millimeter, with between 37 and 52 stem cells. The platelet count gradually dropped to 13,200. On Feb 12, 1951, a surgical biopsy of sternal marrow revealed a solidly cellular marrow composed almost exclusively of sheets of stem cells. The diagnosis of acute leukemia was made 21 days before the patient died of an intracranial hemorrhage on March 2, 1951. Autopsy was not performed.

CASE 7—This 44-year-old woman was a bookkeeper. She had been sensitive to procaine hydrochloride and had allergic rhinitis. In 1946, she had a hysterectomy. In September, 1950, she had a febrile illness of unknown nature and was told that she was anemic at that time. In December, 1950, 12 months before she died and 11 months before a diagnosis was made, she quit work because of weakness and, in January, 1951, was hospitalized because of ear pain. She was treated with transfusions, liver, and iron.

On Feb 28, 1951, she was admitted to another institution because of weakness, fever, generalized pains, weight loss of

12 lb (5.4 kg), and the development of purpura. Physical examination revealed nothing abnormal except purpura and petechiae. Red blood cell count was 2,600,000 per cubic millimeter, hemoglobin, 8.7 gm per 100 cc, and white blood cell count, 5,800, with 55 neutrophils, 2 eosinophils, 40 lymphocytes, and 3 monocytes. On March 6, 1951, the white blood cell count was 17,400 per cubic millimeter, with 1 stem cell, 1 myelocyte, 86 neutrophils, 8 lymphocytes, and 4 monocytes. On March 16, the white blood cell count had dropped to 2,900, with 47 neutrophils, 8 stem cells, 45 lymphocytes, and 2 monocytes. By March 24, after treatment including transfusions, penicillin, and chloramphenicol (Chloromycetin), the hemoglobin level reached 13.3 gm per 100 cc, and the white blood cell count was 4,050, with a normal differential count. The patient was discharged on March 24, 1951, and readmitted three days later with abdominal and joint pains, chills, and fever. A left pleural effusion was demonstrated roentgenographically. The woman was treated with transfusions intermittently until July, 1951, four months prior to death. At that time the liver and spleen were questionably palpable.

She was admitted here on July 9, 1951, after an attack of purulent acute sinusitis. Physical examination revealed an acutely ill, obese woman with marked generalized purpura. The liver and spleen were not palpable. The hemoglobin level was 7.8 gm, red blood cell count, 2,710,000, white blood cell count, 3,850, platelets, 18,700, and reticulocytes, 14%. The differential count included 67 neutrophils, 24 small lymphocytes, 6 monocytes, 1 stem cell, 1 myelocyte, and 1 metamyelocyte, with 13 erythroblasts. Surgical biopsy showed extreme erythroblastic hyperplasia in a solidly cellular marrow. Splenectomy was performed because of a diagnosis of acute hypersplenism (hemolytic anemia and thrombopenia). The spleen showed red pulp hyperplasia and was twice the normal size.

After splenectomy and transfusions, the hemoglobin level dropped to 9.5 gm, the white blood cell count from 13,000 to 6,000 per cubic millimeter, and platelets rose from 42,900 to 112,000 within 12 days. Reticulocytes averaged 1.5%, and there were no immature cells in the peripheral blood during this period. The patient was discharged on Aug. 2, 1951, and rehospitalized in her hometown on Sept. 4, 1951, with fever, pain, and weakness. There was an intermittent pericardial friction rub but no lymphadenopathy, and the liver was never palpable more than one cubic centimeter below the costal margin. She received transfusions, but her course was steadily downhill. On Sept. 9, the white blood cell count was 9,600, hemoglobin, 9 gm, red blood cell count, 3,300,000, reticulocytes, 6.9%, and platelets, 108,000. The differential count included 68 neutrophils, 29 small lymphocytes, and 3 monocytes. By Sept. 24, the white blood cell count had risen to 37,050, with a differential count of 87 neutrophils, 11 lymphocytes, 2 monocytes, and 24 erythroblasts. On Oct. 2, the differential count showed four stem cells. A diagnosis of acute myelogenous leukemia was made on Nov. 5 when the leukocyte count reached 148,000 per cubic millimeter, with 8 myeloblasts, 7 myelocytes, 21 lymphocytes, 7 monocytes, and 54 neutrophils. During the last month of the patient's life, there continued to be immature granulocytes in the blood. The patient died at the end of November, 1951. An autopsy was not done.

CASE 8—A 75-year-old woman noted a vesicular pruritic rash and urticaria in August, 1949, one year prior to death. She noted some resolution after administration of diphenhydramine (Benadryl) hydrochloride and menthol phenol paste. In April, 1950, she was hospitalized for treatment of the skin rash with diethylstilbestrol (Stilbestrol), calcium, ichthammol (Ichthol), and penicillin. She received soft skin x-ray therapy in May and July, 1950. The hemoglobin level and erythrocyte leukocyte, and differential counts were normal until July 10, 1950, three months before she died. At that time, 2,700 leukocytes and a normal hemoglobin level and differential count were noted. The white blood cell count and percentage of neutrophils dropped thereafter. By Aug. 23, 1950, the hemoglobin level was 10 gm per 100 cc, platelets, 66,000, and white blood cell count, 1,000 per cubic millimeter, with 36 neutrophils, 56 small lymphocytes, and 6 monocytes. Physical

examination showed nothing abnormal except a few petechiae and a blotchy red rash. A bone marrow specimen on Aug. 23, 1950, 16 days before death, was almost completely aplastic, only an occasional stem cell and promyelocyte were found. There was no histological evidence of leukemia.

On Aug. 28, the leukocyte count had reached 600, with a differential count of 17 neutrophils, 68 small lymphocytes, 9 monocytes, 4 basophils, 2 myelocytes, and 2 erythroblasts. The marrow contained an adequate number of erythroblasts and a few islands of granulocyte precursors, it contained 80% fat. On Aug. 31, the leukocyte count had risen to 1,150 with 21% stem cells, the only immature cells in the smear. In spite of the absence of lymphadenopathy or splenomegaly, the diagnosis of acute leukemia was considered six days before the patient's death.

She continued to feel well and physical examination revealed only dermal evidence of a hemorrhagic tendency. The hemoglobin level was maintained at 12 gm per 100 cc by repeated transfusions. The patient was discharged on Sept. 5, 1950, although the white blood cell count had risen to 14,150, the platelets had dropped to 27,300, and the differential count showed 93 myeloblasts, 6 small lymphocytes, 1 myelocyte, and 2 erythroblasts. The patient returned to the hospital three days later and, on physical examination, was found to be acutely ill with a temperature of 104.5 F (40.3 C). Her body was covered with petechiae and purpura. Some small, shotty cervical nodes were found. The peripheral blood counts were 12.7 gm of hemoglobin (after a transfusion), 74,500 white blood cells, 29,700 platelets, 0.5% reticulocytes, and a differential count of 88 stem cells, 8 promyelocytes, 2 myelocytes, and 2 metamyelocytes. The bone marrow was composed almost exclusively of sheets of stem cells, and the diagnosis of acute leukemia was considered unequivocal.

The patient died on the day of admission. At autopsy, a diffuse hemorrhagic process was seen. The liver was enlarged to several centimeters below the costal margin and weighed 1,000 gm. The spleen weighed 420 gm. The marrow was pale yellow to yellow brown in color. There was no unusual lymphadenopathy. Microscopic examination showed leukemic replacement in the bone marrow, spleen, liver, and one lymph node.

CASE 9—A 33-year-old streetcar motorman had noticed weakness since March, 1950, five months before a definitive diagnosis was made and six months before he died. In April, he received three transfusions. His history included an attack of anemia and splenomegaly, with spontaneous remission at the age of 14. He had lost 10 lb (4.5 kg) in two years and was a moderately heavy drinker. Physical examination on April 26, 1950, revealed a pale man with a firm, nontender spleen that could be palpated 3 cm below the costal margin. There was no clinical evidence of a hemorrhagic tendency. The hemoglobin level was 5.7 gm per 100 cc, white blood cell count, 850, platelets, 62,700 per cubic millimeter, reticulocytes, 0.1%, and a differential count of 13 neutrophils, 85 small lymphocytes, 1 monocyte, and 1 metamyelocyte. On microscopic section, the bone marrow was solidly cellular because of extreme erythroblastic hyperplasia, hyperplasia of immature granulocytes, and slight increase in stem cells, it contained a large amount of iron. A diagnosis of hypersplenism was made in spite of the low reticulocyte count. Leukemia was considered. The patient was given a transfusion and discharged on May 11, 1950.

On May 26, he was readmitted because of progressive anemia. Essentially the same physical findings were present except for a few small right axillary nodes. Blood chemistry studies showed 7.5 gm of hemoglobin, 1,750 white blood cells, 135,500 platelets, no reticulocytes, and a differential count of 22 neutrophils and 78 small lymphocytes. Reticulocytes remained absent or greatly reduced until later initiation of experimental phenylhydrazine therapy. A splenic biopsy on May 27 showed normal splenic tissue except for foci of degenerating neutrophils and spectacular amounts of iron. The patient was treated with corticotropin from June 1 to June 12. From June 22 to July 2, 1950, a reticulocyte response of 5 and then 15% was obtained during phenylhydrazine administration. There

was a gradual disappearance of reticulocytes after phenylhydrazine therapy was discontinued. The red blood cell count was maintained at 6 to 10 gm of hemoglobin by means of transfusions. Another bone marrow specimen was obtained four days before the end of phenylhydrazine therapy. This specimen showed 20% fat, an increase in neutrophils, extreme erythroblastic hyperplasia, and iron deposition. The hemoglobin level was 11.3 mg, reticulocytes, 4.8%, leukocytes, 6,100, with 62 neutrophils, 34 small lymphocytes, 2 monocytes, 2 metamyelocytes and 1 erythroblast. The liver was biopsied on July 18 and showed a spectacular amount of iron storage and slight scarring, but no evidence of leukemia was detectable. The patient was discharged on July 20, 1950, two months before he died and one month before a diagnosis of leukemia was made. The diagnosis at that time was leukemia, primary refractory anemia, and secondary hemochromatosis.

The man was readmitted on Aug 20, 1950, because of severe sore throat, fever, and weakness. On physical examination, acute tonsillitis and pararectal abscess were found. Hemoglobin level was 5.7 gm per 100 cc, red blood cell count, 2,100,000, leukocyte count 650, platelets, 64,000 per cubic millimeter, and 6 neutrophils, 92 small lymphocytes, and 2 monocytes. There were no reticulocytes. The abscess was drained, and the patient was treated with penicillin and sulfadiazine. A bone marrow biopsy on Aug 20 five months after onset of symptoms and one month prior to death, showed marked replacement of the marrow by stem cells and very immature granulocytes. The megakaryocytes and the formerly numerous erythroblasts were almost completely gone. A diagnosis of acute myelogenous leukemia was made.

By September, 1950, severe bone pain developed. Physical examination on Sept 14 revealed only shotty cervical nodes, a spleen palpable at the umbilicus, and pain on palpation over both tibias. Seven days later, severe purpura, jaundice, nausea, and vomiting developed, and the patient died on Sept 23, 1950. During the month that he lived after the diagnosis had been made, the leukocyte count remained between 800 and 1,200, and the platelets dropped from 88,000 to 21,000 per cubic millimeter. There was complete absence of reticulocytes on three separate occasions. Stem cells composed from 4 to 33% of the leukocytes in the peripheral blood.

The gross findings at autopsy included a yellowish pallor of the skin, generalized hemorrhages, a spleen weighing 825 gm, and a liver weighing 3,100 gm. In the bone marrow, there was extreme hyperplasia of stem cells and immature granulocyte precursors, but megakaryocytes were fairly numerous. The liver, spleen, and abdominal nodes were infiltrated with stem cells, promyelocytes, and myelocytes. The liver, in addition, displayed spectacular hemosiderosis.

CASE 10—A 58 year old woman had complained of a mild bleeding tendency for 20 years and of ecchymoses since the fall of 1946. In April, 1947, she had two epistaxes. In June and July, 1947, epistaxis became much worse. Physical examination on Aug 4, 1947, revealed an obese woman with numerous ecchymoses over her body, bloody discharge from a ruptured tympanic membrane in the right ear, and clotted blood in both nostrils. The hemoglobin level was 11.2 gm per 100 cc, red blood cells, 3,400,000, leukocytes, 4,200, platelets, 126,000 per cubic millimeter and a differential count of 67 neutrophils, 27 small lymphocytes, and 6 monocytes. Bleeding time was 8 minutes 40 seconds. The marrow was solidly cellular because of hyperplasia of all cell lineages, particularly the immature cells. There were no platelets on the marrow smear. The diagnosis of idiopathic thrombocytopenic purpura was considered, although it was felt improbable because of the intense generalized hyperplasia of the marrow, the platelet count at the lower limit of normal, and the late onset of severe hemorrhagic symptoms.

The patient's course continued unchanged, with platelet counts varying from 147,000 to 34,000 per cubic millimeter but with a drop in the leukocyte count to 3,600. In June, 1950, a fever caused by pneumonitis developed, and, beginning on June 14, the woman was treated with sulfadiazine, acetylsalicylic acid (Empirin) and codeine. After this she became much worse and, on June 17, the hemoglobin level was 8.4 gm red blood cell count, 4,200,000, white blood cell count,

1,350, platelets, 34,000, with 81% neutrophils, 15% small lymphocytes, and 4% monocytes. The leukocyte count fell to 150 by June 21, and, on that day, administration of cortisone was begun, 100 mg every 3 hours and then 100 mg every 8 hours. Two days later, administration of aureomycin and rutin was begun and resulted in excellent subjective relief. The white blood cell count gradually rose to 4,750 by Aug 2, 1950, but the number of platelets remained at about 50,000. No abnormal cells were seen in the peripheral blood except for an occasional erythroblast.

During most of 1951, the patient was continually troubled by purpura and mild chronic anemia, and she was again hospitalized on Sept 19, 1951, because of fever, dyspnea, and weakness. Physical examination revealed a critically ill, feversh woman, with extensive ecchymoses and purpura. The spleen was palpable. There were several light purple, indurated nodules on both arms. The hemoglobin level was 6.5 gm per 100 cc, red blood cells, 2,500,000, white blood cells, 1,100, platelets, 9,900 per cubic millimeter, bleeding time, 6 minutes 30 seconds, clotting time (Lee White), 1 hour and 20 minutes, and reticulocytes, 2.9%. The differential count showed 50 neutrophils, 42 small lymphocytes, and 8 monocytes, with 8 erythroblasts. The Rumpel Leede phenomenon was present. Cortisone was administered on Sept 21. Two attempts to obtain sternal marrow specimens were unsuccessful. On Sept 25, a skin nodule was biopsied. There was a diffuse and nodular inflammatory response, consisting almost entirely of vacuolated mononuclear cells. Several observers agreed the response was not leukemic in nature but probably due to an old lipogranuloma with some recent inflammation. On Oct 8, an ischiorectal abscess developed, it was drained on Oct 12. During the remainder of the patient's hospitalization, the white blood cell count, which had dropped to 300 on Sept 25, gradually rose to 6,100 on Nov 20, 1951. The differential count remained normal, but erythroblasts were continually found.

Since November, 1951, the patient has been seen approximately monthly in the outpatient department. She had taken 50 to 75 mg of cortisone daily until the middle of January, 1952, at which time the use of cortisone was stopped until the middle of June, 1952. She has since been treated with cortisone during a period of hospitalization in February, 1953. During this period of hospitalization, she felt badly, and the severe hemorrhagic process continued without any change related to cessation and resumption of cortisone therapy. On May 20, 1952, the spleen was palpated two fingerbreadths below the costal margin. The leukocyte count varied from 2,500 to 6,100 per cubic millimeter, hemoglobin level from 6.5 to 10.8 gm per 100 cc, and the differential counts normal except for occasional erythroblasts. Platelets varied from 40,000 to 75,000.

The patient was hospitalized on Feb 20, 1953, because of extreme fatigue associated with a hemoglobin level of 5 gm. Physical examination showed nothing abnormal except petechiae, purpura, ecchymoses, and a barely palpable spleen. The peripheral blood counts revealed 12,100 platelets, 4.3% reticulocytes, and a differential count of 55 neutrophils, 29 small lymphocytes, 3 monocytes, 1 metamyelocyte, 12 stab cells, and 5 erythroblasts. A final diagnosis had not been established when this paper was written.

CASE 11—This 61 year old man was a solderer. He had an attack of gallbladder colic in both 1931 and 1942. He noted indolent, purple, scaling, indurated small masses on both legs on July, 1950. Physical examination on Nov 8, 1950, showed nothing abnormal except these masses. The leukocyte count was 8,400, hemoglobin level, 12.5 gm, and red blood cell count, 4 million. The lesions gradually became more indurated and erythematous. Results of physical examination and peripheral blood counts on March 8, 1951, were unchanged except for a drop in the leukocyte count to 5,100. The differential count showed 39 neutrophils, 1 large lymphocyte, 51 small lymphocytes, 6 monocytes, 2 eosinophils, and 1 basophil.

The patient was admitted to the hospital on March 28, 1951, five months before a diagnosis of acute leukemia was made and six months prior to his death. The only pertinent physical finding was the presence of numerous indurated, erythematous, fixed plaques on both legs. Blood chemistry studies on March 12, 1951, revealed 11.5 gm of hemoglobin, 3,800,000 red blood cells, 4,700 leukocytes, 26,700 platelets, and 44 neutro-

phils, 1 eosinophil, 44 small lymphocytes, and 11 monocytes. The bone marrow was slightly hyperplastic because of an increased number of erythroblasts, but there was a decrease in the number of granulocytes because of maturation arrest at the metamyelocyte stage, only occasional adult granulocytes were seen. Toxic depression of the marrow was suspected. The patient's skin lesions cleared slowly with penicillin therapy. He had one attack of typical gallbladder colic on April 1, 1951.

Early in May, 1951, right upper quadrant pain developed and radiated into the patient's back. Cholecystectomy was performed on May 15, 1951. Sections of a surgical biopsy of the liver showed a nonspecific, poorly defined, granulomatous portal infiltrate. Postoperatively the patient's course was stormy and a pleural effusion developed. The temperature rose to 38°C, and continued malaise and anorexia were present. Acid fast bacilli were reported on May 21 from specimens of sputum collected in the middle of April. The liver and spleen were palpated by one observer. Treatment with streptomycin was begun. Because of the possibility of a subphrenic abscess, a transthoracic exploration of the right upper quadrant was performed on June 16, 1951. No lesion was found. Marrow from the resected rib showed a definite increase in granulocyte precursors and a decrease in erythroblasts and megakaryocytes but was clearly not leukemic. The blood cell count on June 25 showed 5,050 white blood cells, 95 gm of hemoglobin, and 3,300,000 red blood cells. A differential count was not done. The patient was discharged on June 27, 1951.

Because of continued fever, weakness, and weight loss, the man was readmitted on July 26, 1951, two months before he died. He appeared chronically ill, a lymph node was palpated in the right axilla, the liver was felt 2 cm below the costal margin, and the spleen was questionably palpable. There was no evidence of unusual bleeding or bruising. The hemoglobin level was 6 gm per 100 cc, red blood cell count, 2,100,000, white blood cell count, 12,350, platelets, 146,300 per cubic millimeter, reticulocytes, 7.7%, and a differential count of 17 neutrophils, 15 small lymphocytes, 3 monocytes, 50 myeloblasts, 6 promyelocytes, 7 myelocytes, and 2 metamyelocytes. The bone marrow on July 27, 1951, showed further increase in cellularity due to hyperplasia of extremely immature granulocytes, decrease in erythroblasts and megakaryocytes, and increase in iron. Acute myelogenous leukemia or a leukemoid reaction caused by tuberculosis were strongly suspected two months prior to death. The patient continued a downhill course in spite of treatment with streptomycin.

On Aug 20, 1951, the hemoglobin level was 9.2 gm and the red blood cell count 2,700,000 in spite of repeated transfusions. The leukocyte count was 7,100, platelets, 93,500, reticulocytes, 0.9%, and a differential count included 12 neutrophils, 1 eosinophil, 26 small lymphocytes, 8 monocytes, 52 stem cells, and 1 metamyelocyte. The bone marrow on the same day showed diffuse sheets of stem cells, with some promyelocytes. A diagnosis of acute myelogenous leukemia was made one month before death. Purpura and edema developed, and the patient died on Sept 28, 1951. At death, the number of platelets had dropped to 22,000, hemoglobin remained unchanged because of constant transfusion, and the leukocyte and differential counts were unchanged.

At autopsy, the gross findings were generalized, moderate lymphadenopathy, generalized petechiae and ecchymoses, hepatomegaly, and splenomegaly. Microscopically there were infiltrations of hematopoietic tissues with stem cells and immature granulocyte precursors in the liver, adrenal glands, and testes. Active disseminated tuberculosis, and hemosiderosis.

CASE 12—A 57-year-old woman was first seen in the surgical clinic on March 31, 1950, 11 months prior to death and 10½ months before a diagnosis was made. She complained of generalized aching and pains in her bones of four weeks' duration. At that time, physical examination, hemoglobin level, and red and white blood cell counts were normal. Between March 31 and April 4, 1950, there was marked weight loss, and the patient was admitted to the hospital for study. Except for moderate joint tenderness, physical examination showed nothing abnormal, the hemoglobin level and red and white blood cell and differential counts were normal. Roentgenograms showed extensive, diffuse demineralization of bone. A diagnosis

of postmenopausal osteoporosis was made. The woman was bothered by recurrent attacks of sinusitis until July, 1950, when stomatitis developed. In October, 1950, a bruising tendency developed.

On Nov 2, 1950, she was again hospitalized because of purpura, painful cervical lymphadenopathy, sinus pain, nasal discharge, and sores in her mouth. The results of physical examination verified these complaints. The hemoglobin level was 8.2 gm per 100 cc, red blood cell count, 2,800,000, leukocyte count 1,850, platelets, 39,600 per cubic millimeter, reticulocytes, 1.6%, and differential count, 7 neutrophils, 86 small lymphocytes, and 7 monocytes. Bleeding and clotting times were normal. A bone marrow specimen was normal except for maturation arrest in the granulocytes and questionable increase in the number of stem cells. A diagnosis of toxic depression of the bone marrow was made, and all medication was stopped except for the administration of penicillin.

The patient's condition remained unchanged, although the leukocyte count gradually rose to 7,000, and 46 erythroblasts appeared in the blood by the end of November, 1950. The painful cervical nodes resolved, and the oral lesions healed. By Dec 4, 1950, the differential count included two myeloblasts, six myelocytes, two metamyelocytes, and nine erythroblasts, and the leukocyte count was 7,000. During December, there was continued fever, anorexia, and recurrent buccal ulcers, but physical examination was otherwise normal. Repeated differential counts continued to show immature cells in the peripheral blood. Aplastic anemia, either idiopathic or the result of a toxic substance or leukemia was considered to be the most probable diagnosis. By Jan 20, 1951, there was bleeding from the rectum, and the spleen was palpated for the first time. The leukocyte count had risen to 8,000 per cubic millimeter, with 9 neutrophils, 10 small lymphocytes, 69 medium lymphocytes (lymphoblasts), 1 monocyte, 5 myeloblasts, 5 promyelocytes, 1 myelocyte, and 17 erythroblasts. A bone marrow specimen at that time was solidly cellular primarily because of an increase in the number of stem cells and immature granulocytes, although the number of erythroblasts and megakaryocytes was adequate. A diagnosis of acute myelogenous leukemia was made 11 months after onset of the disease and three weeks before the patient died.

By Feb 14, 1951, she was much worse. Purpura was grossly manifest, but the liver and spleen were not felt. There was no lymphadenopathy. The leukocyte count was 16,300, platelets, 14,300, reticulocytes, 6.5%, and differential count, 37 neutrophils, 20 small lymphocytes, 1 monocyte, 1 eosinophil, 6 medium lymphocytes, 25 stem cells, 7 myelocytes, 3 metamyelocytes, and 12 erythroblasts. The patient was given 20 mg of corticotropin intramuscularly for two days and, then, 50 mg daily until she died on Feb 19, 1951. The hemorrhagic tendency was not benefited by toluidine blue, and the woman died of a cerebral hemorrhage.

The major abnormality in the gross findings at autopsy was evidence of a widespread hemorrhagic process. The hematopoietic organs were not enlarged. Large areas of stem cells were found in lymph nodes, and most of the bone marrow was replaced by the same cells, while erythroblasts, neutrophils, and megakaryocytes were greatly reduced in number. The sinusoids of the liver and the red pulp of the spleen were filled with stem cells, but the architecture was still preserved.

COMMENT

A major consideration is whether or not the conditions described in these 12 cases, because of the long duration of symptoms, actually should be classified as acute leukemia. The final diagnosis, however, logically rests on the terminal clinical, hematological, and anatomic findings. On this basis, final opinion must be reserved in the patient in case 10 because she is still alive. That case is reported because the course resembles that of the preleukemic phase manifested by the other 11. The patient in case 7 had a very characteristic terminal clinical course that was manifested by an overwhelming increase in the number of immature cells in the peripheral blood,

anemia, thrombopenia, fever, and generalized hemorrhagic process, but, as has already been stated, leukemoid reactions may mimic this pattern. The presence of splenomegaly, however, without myeloid metaplasia, as well as severe thrombopenia make leukemia a probable diagnosis. Unfortunately, no tissue studies were available from the last four months of the patient's life and permission for autopsy was refused, therefore, the diagnosis is not as clearcut in this case (case 7) as in the others. The patients in cases 1, 4, 8, 9, 11, and 12 had terminal clinical, hematological, and autopsy findings characteristic of acute leukemia. Those in cases 2 and 6 had terminal clinical courses and peripheral blood and bone marrow findings of acute leukemia, but other tissues were not available because permission for autopsy examination was refused. The patient in case 3 had a clinical course and peripheral blood values characteristic of acute leukemia, but the bone marrow was not pathognomonic of this disease, and no evidence of leukemia was found in other tissues. The short duration of the leukemic state from a few days to one and one-half months, except in case 4 (4 to 20 months) and case 5 (9 months), indicates an acute or, at most, subacute course.

The possibility still remains that these 12 patients manifest a divergent type or variant of acute leukemia that, in past years prior to the use of transfusions and antibiotics, was fatal because anemia or intercurrent infection developed before the leukemic phase was reached. At a recent meeting at which this paper was presented, we were told of four similar cases by physicians in the audience. In our 12 patients, the cause of death, hemorrhage, is still the major cause of death in acute leukemia.

Ten of the 12 patients (table 1) were women, all of whom were menopausal or postmenopausal, although there was a very wide variation in age and in duration of menopausal state, as well as in whether menopause was spontaneous or induced. The age of the patients is not too unusual, since acute leukemia is, except in childhood, commonest in the older age group. In the few similar cases reported in which the preleukemic state was studied, the majority¹⁰ of patients were not menopausal women. It is probable that the patients in Mallarmé's case^{10f} and Scholtz's case 4¹¹ were menopausal women. In the mouse, the incidence of leukemia is enhanced by estrogens and decreased by androgens, and spontaneous mouse leukemia is commoner in older than in younger mice.¹²

Six of our patients had allergies of various types, and all six experienced a period of neutropenia, with atrophy and maturation arrest of the bone marrow characteristic of a toxic neutropenia. During the two to three years of this study, at least seven other patients with toxic neutropenia have been seen. They had characteristic atrophy and maturation arrest of granulocytes in the bone marrow, and, during the recovery phase, granulocytic hyperplasia developed, with maturation arrest of the bone marrow severe enough to be classified as leukemoid but without progression into leukemia. Furthermore, two of these seven patients were menopausal women. A similar hyperplastic marrow stage, sometimes coinciding with the presence of immature cells in the peripheral blood, has been described in agranulocytoses, which is also

predominantly a disease of middle aged women.⁹ Consequently, we did not believe that the diagnosis of acute leukemia was warranted at that stage in the preleukemic phase of the disease.

One of the most striking points was the long duration of the preleukemic as compared to the leukemic phase. The classic histological criteria of acute leukemia, overwhelming of the bone marrow by stem cells, with or without extremely immature granulocyte precursors, and marked decrease in the number of megakaryocytes and erythroblasts, did not develop in some patients until shortly before death. For example, the criteria for the diagnosis of acute leukemia were not fulfilled in cases 1, 2, 3, 6, 7, 8, 9, 11, and 12 until less than two months prior to death and after a preleukemic phase of 3 to 17 months.

An extreme situation was met in case 8 in which peripheral blood studies were not indicative of leukemia and aplastic marrow with a few areas of regeneration were found only 16 days before death. Eight days before death, there were 21 myeloblasts in a leukocyte count of 800 per cubic millimeter. A hiatus leukemicus was noted three days before death. On the day of death, a bone marrow specimen indicative of acute leukemia was found for the first time. Unfortunately, marrow studies were not available during the last 16 days of life, but it would seem extremely unlikely that this patient reached a leukemic state more than 3 to 8 days prior to her death.

The longest duration of the leukemic phase (case 4) was probably 20 months, this patient's disease would, therefore, be in a subacute category. Because of the lack of tissue studies, exact determination of the end of the preleukemic phase could not be made, although it was almost certainly after 10 months.

The onset of acute stem cell or acute myelogenous leukemia is rapid and there is rarely opportunity to study the prodromal phases.¹³ In the available literature, we have been able to locate only 12 reports¹⁴ in which a preleukemic phase was studied. The patients reported by Folley^{14b} were Japanese persons exposed to an atomic bomb blast approximately two to five years prior to their death. Some of those patients were still living in 1951, but apparently no studies were available during the preleukemic phase. The majority of these persons had an acute leukemic phase of the stem cell or myelogenous variety. The other patients described in the literature had a preleukemic phase varying from two and a half years^{10a} to a few weeks,^{10c} and all had an extremely acute leukemic phase of the stem cell or myelogenous variety.

The experience almost uniformly reported is that physical evidence in the preleukemic phase in both men and women is characterized by only purpura and necrotic, poorly healing mucous membrane lesions but not by palpable enlargement of the hematopoietic organs.¹⁵ Folley's patients^{14b} almost certainly passed through a phase in which the hematopoietic organs were smaller than normal as judged by clinical¹⁶ and experimental animal studies¹⁷ on total body irradiation. In Scholtz's patient,^{11a} a woman, the spleen was barely palpable, and there were oral petechiae at the onset of the disease, 18 months before the development of the leukemic phase when hepatomegaly and a sudden spectacular increase in splenomegaly were noted. It is probable

that Beyers' patients, reported to have aplastic marrows, already had leukemia when first seen.¹⁸ These phenomena are in agreement with our experience, since palpable abnormal enlargement of nodes, liver, or spleen was usually delayed until a true leukemic state was reached.

Purpura, usually mild, was the first abnormal physical sign in nine patients. It preceded the date of diagnosis by months or days, except in the two men (cases 9 and 11). In these two men, the spleen was palpable two to four months before the diagnosis was made. In one woman, the spleen was questionably palpable for a short time. Lymphadenopathy was never found until the diagnosis had been verified microscopically. In case 12, no enlarged organs were found even at autopsy. Except in the men, abnormal enlargement of hematopoietic organs was, therefore, a late development restricted to the leukemic phase alone.

Each patient, regardless of the length of the preleukemic phase, had clinical manifestations of a deficiency of at least one facet of marrow hematopoiesis, such as anemia, leukopenia, thrombopenia, or various combinations thereof. The woman in case 5 had an abnormal bruising tendency at least three and possibly eight years prior to the time that diagnosis was made, and a hemorrhagic process was apparent early in two patients (cases 4 and 5). In cases 1, 2, and 9, anemia was the earliest major problem and, in cases 3, 6, and 12, infection, presumably secondary to or aggravated by neutropenia, presented the first major problem. Very early in the preleukemic phase, the patient in case 7 showed evidence of infection, hemorrhagic phenomena, and anemia. It is noteworthy that in almost each patient clinical evidence of bleeding or bruising preceded objective laboratory abnormalities.

In the patients in the preleukemic stage reported on in the literature, there also was evidence of more than one type of marrow insufficiency. In several reports, one aspect was sufficiently prominent so that the cases might be classified as those in which protracted anemia was the major problem,¹⁹ neutropenia, with bouts of infection and degenerating lesions of the mucous membranes, were most prominent,^{13b} and those in which the classic concept of aplastic anemia, with anemia, thrombopenia, and neutropenia, was simulated.²⁰ It is probable that, in the persons exposed to an atomic bomb blast,^{14b} there was also a phase in which the symptoms were due to aplastic anemia. It must be emphasized, however, that in both our patients and those reported on in the literature, regardless of the most prominent type of onset, there was some evidence of an abnormal hemorrhagic tendency early in the course of the disease. These, of course, are entirely different from the cases of chronic leukemia described by Minot²¹ and Wintrobe,²² in which, while the disease was asymptomatic, unequivocal chronic leukemia was present. It must be emphasized that, in the preleukemic phase, there was no unequivocal evidence of leukemia in either the peripheral blood or biopsy specimens of the marrow or, in the few instances in which such material was available, in the liver or spleen.

The lack of indications of leukemia in the peripheral blood characterized the preleukemic period in all patients, although other abnormalities were noted. One of the earliest changes in two or three of our patients, as

well as in the three described by Mallarmé,^{10c} was severe neutropenia, with fairly normal absolute count of small lymphocytes. Even in the rest of our patients, depression of the number of neutrophils in the blood tended to precede and be severer than lymphopenia, this is similar to the experience of Ehrlich and Forer.^{10b} Even in cases in which anemia was the early prominent problem,¹ lymphopenia occurred later than did neutropenia.

In our patients, immature leukocytes began to appear in the peripheral blood within a week or two after the diagnosis of acute leukemia was made on other grounds. In case 9, peripheral blood findings were not diagnostic of leukemia until two weeks before the patient died and two weeks after the diagnosis had been made by bone marrow aspiration. Case 4 is the only one that represents the other extreme, immature cells in the peripheral blood were sufficiently numerous 26 months before death to suggest the diagnosis. Similar prolonged preleukemic phases, without immature leukocytes, have been reported, some as long as 3 years^{10a} but most on the average of 6²⁴ to 18²⁵ months from the time the patient was first seen. Naturally, if one were to include the months during which there were noticeable symptoms, the preleukemic phase, without immature white blood cells in the peripheral blood, would be much longer.

Another point that must be emphasized in this connection is that the diagnosis of acute leukemia cannot be based on the presence of immature cells in the peripheral blood. Large numbers of white blood cells, including myeloblasts, may accompany nonleukemic diseases particularly myeloid metaplasia,² agranulocytosis,²⁶ aplastic anemia,⁶ carcinomatosis,²⁷ skin rashes,²⁸ and numerous other hematological diseases.²⁸ Spectacular examples have been described by Herz²⁹ (55 stem cells and 24,000 leukocytes) and by Sotilo-Ortiz³⁰ in a case of carcinoma of the ovary (12 stem cells, 12 myelocytes, and 7 meta myelocytes and a white blood cell count of 940,000).

A major problem has been the evaluation of the large numbers of monocytes seen frequently in our patients at about the time that immature cells first began to appear, a phenomenon not appreciated by most observers except Collins^{10a} and Leya.^{10b} As long as even such a capable hematologist as Naegeli^{13a} comments on the difficulty of distinguishing, in dry smears, between monocytes and myelocytes and metamyelocytes, it will be impossible to determine whether the monocytosis seen is actually because of confusion of this cell type with the myelocyte.

The finding of large numbers of erythroblasts in the peripheral blood in the past has seemed to contradict the diagnosis of leukemia.³⁰ It is of interest that each patient except those in cases 9 and 11, the two men, had significant numbers of erythroblasts at varying times. In cases 3 and 4, there were periods in which 50 erythroblasts were counted. In case 9, even though the response to cortisone and corticotropin was reticulocytosis, there were never any erythroblasts noted in the peripheral blood, megaloblasts were never found. In case 1, the only case in which there was extreme erythroblastic hyperplasia of the marrow, and cases 4 and 9, in which there was marked marrow erythroblastic hyperplasia, peripheral blood erythroblastosis was not most marked. In all cases, erythroblastosis was not correlated with erythroblastotic marrow.

Several other authors²⁹ have described a preleukemic phase characterized by erythroblastic crises, but only Heilmeyer and Schoner have presented clearcut evidence of megaloblastosis in the marrow in the modern sense of a cell lineage characteristic of pernicious anemia.³⁰ In some instances,³¹ erythroblastosis reached a spectacular degree.

Reticulocytes are commonly accepted as indicative of new production of red blood cells in the circulating blood. All of the patients except the one in case 9 had significant periods of reticulocytosis, with counts running usually from 1 to 7%. Even in case 9, the reticulocyte response to phenylhydrazine was 15%. Unfortunately, there is very little material in the literature on reticulocyte response of patients in the preleukemic phase. In Foy's patient, there was a reticulocyte response of 14% after therapy with liver,^{10c} but it is possible that this reticulocytosis had nothing to do with treatment and was purely incidental, since there was no response evident in the red blood cell count or hemoglobin. In Heilmeyer's^{10d} cases, there was a reticulocyte response of 5 to 11% (case 1) and of 15 to 35% in another (case 2), neither of these was apparently affected by treatment with a variety of hematinics or blood transfusions.

The relationship of the onset of purpura to that of thrombopenia is difficult to interpret because, in the majority of our cases and probably in those reported in the literature, the platelet count was usually not checked until after some evidence of a hemorrhagic tendency was noted. In cases 1, 2, 8, 11, and 12, platelet counts were available at about the time that abnormal bruising was first noted, and, in each case, the platelet count was depressed. In case 2, a normal platelet count was obtained one month prior to the onset of clinically evident purpura. In cases 3, 4, and 5, there was an abnormal bleeding tendency but a normal number of platelets for periods ranging from six months to two years prior to the demonstration of a thrombopenia. In case 9, the platelet count was 62,000 in April, 1950, and there were numerous other low and low normal counts, but unusual bleeding or bruising did not develop until a few weeks prior to the patient's death. In the other cases, adequate information on early platelet counts is lacking. Unfortunately, it is difficult to correlate our results with those in the literature, since, in most cases, platelet counts were not made in the preleukemic state. In the few available, it would appear that abnormal bleeding and thrombopenia developed simultaneously.

Although a detailed consideration of the histogenesis of the disease will be made in a future publication, there are some points of practical diagnostic interest derived from the tissue studies. Examination of the spleen when the diagnosis was made (case 3), three months before diagnosis (case 7), and three and one-half months before diagnosis (case 9) failed to yield any conclusive evidence of leukemia, although there were some minor abnormalities, barely suggestive of leukemia. Similarly, examination of the liver six months before the diagnosis was made (case 1), when the diagnosis was strongly suspected (case 3), and three weeks before the diagnosis was made (case 9) failed to yield any conclusive evidence of acute leukemia. The numerous bone marrow specimens, except in case 4, seemed to follow one general pattern that in-

cluded the presence of aplasia and maturation arrest in the granulocyte series, sudden or gradual shift to hyperplasia with maturation arrest of the granulocytic lineage, and then, as the change to leukemia ensued, an overwhelming of the marrow by stem cells and immature granulocyte precursors. Up to this final malignant change, the bone marrow specimens presented a sequence of histological patterns seen in acute toxic neutropenias of the type caused by drugs. Erythropoiesis varied in these early biopsies from extreme activity to extreme aplasia.

The differential diagnoses considered during the preleukemic phase (table 2) were primary refractory anemia, with hyperplastic marrow, aplastic anemia, primary or secondary thrombocytopenic purpura, hypersplenism of a pure or mixed type, toxic neutropenia, and miliary tuberculosis, with a leukemoid reaction. The major problem of differential diagnosis was toxic neutropenia that was considered a strong possibility in cases 3, 6, 8, 9, 10, and 12. Even in retrospect, in reviewing the information available and knowing the final diagnosis, it is still impossible to separate these cases from those of toxic neutropenia any earlier than had been done by the

TABLE 2—Possible Diagnoses Considered in Preleukemic Phase

Case	Diagnosis
1	Primary refractory anemia with hyperplastic marrow and acquired hemolytic anemia
2	Toxic aplasia of marrow and acquired hemolytic anemia
3	Hypersplenic neutropenia and toxic neutropenia
4	Primary or secondary thrombocytopenic purpura
5	Nonthrombocytopenic purpura
6	Primary or secondary aplastic anemia
7	Hypersplenism
8	Toxic neutropenia and primary or secondary aplastic anemia
9	Hypersplenism, primary refractory anemia with hyperplastic marrow and secondary hemochromatosis
10	Primary or secondary thrombocytopenic purpura and toxic neutropenia
11	Toxic neutropenia and tuberculosis with leukemoid reaction
12	Postmenopausal osteoporosis, toxic neutropenia, and aplastic anemia

criteria employed. In cases 1 and 9, the diagnosis was confused with that of primary refractory anemia with hyperplastic marrow of the type described by Bomford and Rhoads³² because of extreme anemia, erythroblastic bone marrow, and low reticulocyte counts. A diagnosis of hypersplenism was made in case 7 because of reticulocytosis, increased fecal urobilinogen, neutropenia, and thrombopenia. That patient's bone marrow was so cellular at the time that the validity of the diagnosis should have been suspected even though leukemia was not suggested. In cases 4 to 5, the onset was manifested by hemorrhagic diathesis, and splenectomy was considered because of the possibility of idiopathic thrombocytopenic purpura. The patient in case 11 was known to have tuberculosis, and, when splenomegaly and hepatomegaly developed, miliary tuberculosis was thought to be a possibility. It was only later that the bone marrow and peripheral blood gave evidence of leukemia. True aplastic anemia was considered in cases 6, 8, and 12, because of the clinical picture, decrease in all elements in the peripheral blood, and aplastic bone marrow tissue.

A similar variety of clinical findings has been described in the literature. Cases are reported in which the preleukemic state resembled aplastic anemia²⁴ and others in which there was extreme erythroblastic or megaloblastic

blastic proliferation or primary refractory anemia with hyperplastic marrows,^{10c} pernicious anemia,^{8a} toxic neutropenia,^{7a} and thrombocytopenic purpura. The difficulties that may arise in separating these conditions from even the full-blown case of acute leukemia have already been mentioned.

SUMMARY

A preleukemic phase, preceding the development of true acute leukemia, is described as found in studies of 10 and possibly 11 cases of acute leukemia and of one case of subacute leukemia. Ten of the 12 patients were women, and 6 had an allergic diathesis. Physical examination in the preleukemic state, except in the two men, revealed nothing abnormal except fever, evidence of abnormal bleeding, and, occasionally, mucous membrane ulcers. Palpable enlargement of hematopoietic organs usually was first encountered after the leukemic phase had begun. The preleukemic period, which was much longer than the leukemic period in all but one patient, was marked by deficiency of at least one type of marrow function. A hemorrhagic tendency, usually accompanied by thrombopenia, was the commonest early expression of this marrow malfunction. Neutropenia was found comparatively early and preceded the disappearance of small lymphocytes. Monocytosis was fairly common but was hard to evaluate because of the difficulty in differentiating these cells from myelocytes. Erythroblastosis and reticulocytosis, sometimes of spectacular degree, were common.

Immature cells tended to appear in the peripheral blood toward the end of the preleukemic phase, but peripheral blood characteristic of acute leukemia was first seen in the leukemic phase. Biochemical determinations yielded nonspecific results except for the fairly common finding of hyperbilirubinemia and increased fecal urobilinogen indicative of hyperhemolysis.

In the preleukemic phase, the most characteristic early change in the marrow was the development of maturation arrest and aplasia of granulocytes, which was accompanied by an erythroblastic tissue that varied from extreme aplasia to extreme hyperplasia. Thereafter, progressive hyperplasia and maturation arrest of granulocyte precursors developed until the marrow was largely replaced by stem cells and promyelocytes, this marked the beginning of the leukemic phase. Examination of the few available liver and spleen biopsies in the preleukemic phase failed to reveal any marked abnormality. Occasional stem cells were seen in the splenic red pulp immediately prior to the development of the leukemic state.

The major problem in differential diagnosis was the resemblance of the preleukemic state to various blood dyscrasias, especially toxic neutropenia, aplastic anemia, or hypersplenism. This problem in differential diagnosis was not clarified until the leukemic state developed. The leukemic state was almost invariably acute and, in some cases, explosive with regard to its course and resistance to the usual palliative measures.

CONCLUSIONS

On the basis of clinical observations, peripheral blood cell counts, and tissue studies, the preleukemic phase of acute leukemia is described and differentiated from the leukemic phase of acute leukemia.

ADDENDUM

Since this paper was written, we have seen acute myelogenous leukemia develop in five patients, four men and one woman. One patient had secondary polycythemia due to congenital heart disease and was treated with radiophosphorus. Another had polycythemia vera that was treated with radiophosphorus, during the period of treatment, myeloid metaplasia and then terminal acute myelogenous leukemia developed. One patient had lymphosarcoma treated with x-ray therapy, and in the fourth case, the disease was idiopathic. The woman had carcinoma of the breast treated by resection and irradiation, specially of the long bones. The disease pattern of these five patients resembled that described here with regard to the preleukemic and leukemic phases.

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CLINICAL NOTES

ACUTE LEUKEMIA IN TWINS

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The rare observation of more than one person with leukemia in the same family has suggested this report. Acute leukemia affected each of fraternal twins during their second year of life. One twin died at the age of 18 months and the other at the age of 24 months.

REPORT OF CASES

Members of the family included the father, 29 years of age, mother, 32, a son, 9, three daughters, 8, 5, and 4, and the twin boys. The family lived in a small Illinois town. The twin boys, Terry and Jerry, were born Aug. 4, 1943. These twins did not resemble each other closely and were said, by the attending physician, to be fraternal and not identical twins. During pregnancy, the mother was said to have had toxemia with edema, albuminuria, and pyuria.

Jerry weighed 5 lb. 8 oz. (2,494.8 gm.) at birth and gained weight regularly and satisfactorily. He had had no disease and only infrequent, mild respiratory infection. He had received no immunizations. His development was normal. When he was 22 months of age, he was admitted to the hospital on June 5, 1945, with the report that three weeks previously sore throat, fever, and swollen cervical nodes had developed. The fever and sore throat had subsided after therapy with sulfadiazine, but the glandular swelling had persisted. During the week previous to admission, he had been noted to be pale. Several 'bruised' areas had appeared on his skin, and he had seemed moderately irritable.

On examination, the positive findings were pallor, very slight fever, moderate irritability, several moderate sized ecchymoses on the legs and back, slightly enlarged, firm spleen, and moderately enlarged liver that extended 5 cm. below the costal margin. All superficial lymph nodes were slightly enlarged and firm, those in the right posterior cervical region were large enough to be visible. Blood examination showed a moderate anemia with a hemoglobin level of 7.8 gm. per 100 cc. and leukocytes 13,800 per cubic millimeter. The clotting time was 4.5 minutes and the bleeding time more than 15 minutes. A blood smear showed marked decrease in platelets, and 95% of the cells were mononuclear leukocytes, most of which were a young blast type. Jerry was given two transfusions of 250 cc. each and discharged on June 8, 1945, with the diagnosis

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of acute leukemia His mother wrote that for two weeks thereafter he was feverish and irritable but then appeared much better for several weeks Later the abdomen, possibly the spleen, became swollen and the neck glands larger, and there was considerable hemorrhage from the gums The hemorrhage continued, although the swelling of the neck and abdomen subsided Jerry died on Aug 3, 1945, the day before his second birthday

Since it was stated by the parents that the other twin, Terry, had died from leukemia a few months previously, the record of his illness was obtained from the physician who had treated him in the Alton Memorial Hospital and who supplied the following data

Terry weighed 4 lb (1,814.37 gm) at birth and did not gain weight quite so well as his twin, but he had no serious illness and developed normally At the age of 17 months, he was noted to have fever and hemorrhagic areas on the skin For the next month, his appetite was poor, and he lost weight and refused to walk On admission to the hospital on Jan 25, 1945, he had a severe anemia, scattered purpuric spots on the skin, and a moderately enlarged spleen Laboratory examination showed erythrocytes 1,900,000 per cubic millimeter and hemoglobin (3.5 gm per 100 cc) The leukocyte count was 97,000 per cubic millimeter, with 96% lymphocytes and very scanty platelets A transfusion was given, and, within three days, the leukocyte count fell to 2,000, with no granular form seen and only slight increase in hemoglobin (5.1 gm per 100 cc) Terry rapidly became weaker and died on Jan 29, 1945 Necropsy was not permitted

COMMENT

Familial leukemia or those instances in which two and occasionally more relatives have suffered from the disease have been noted very infrequently Most hematologists have shared the view expressed by Naegeli¹ who saw only one case of familial leukemia in 25 years, a woman had myelosis, and her brother had chronic lymphadenosis Naegeli stated "with the large number of leukemic patients one must expect the probability of such a chance occurrence" Recently, Videbaek² has critically reviewed the published familial reports and has found only 26 that he considers authentic examples He has also made a thorough and laborious investigation of the relatives of 209 patients with leukemia and found that 17, or 8.1%, of such patients had one or more relatives with the disease Since, in a few reports, the families were related, he was able to add 13 families to the 26 previously reported as having more than one member affected Most of the affected persons were adults, and all types of the disease were represented, although more than two-thirds of these persons had chronic forms Half of all patients were over 50 years of age Videbaek believes it likely that hereditary factors may be of etiological significance in the development of the disease Such an assumption must also assume that all types of leukemia are very closely related to one another, in spite of the striking clinical and hematological differences

Acute leukemia, which comprises at least 95% of leukemia in children, occurs with moderate frequency, since between 1940 and 1949 it was reported that an average of 1,100 children under 15 years of age died of leukemia each year in the United States In the literature, Jelke³ in 1940 reported the disease in monozygous twins who died at the ages of 4 and 5 months, and Riel⁴ in 1948, reported on monozygous twins both of whom died at 3 years of age The only other record of the disease in siblings is its remarkable and unique occurrence in five of eight siblings in one family reported by Anderson⁵ All of the af-

ected children died between the ages of 5 and 8 years In this family, there was no other case of leukemia in 135 near or distant relatives While it is possible that other unreported instances have occurred, familial leukemia is of such interest and rarity that it appears likely that most instances would be reported At the St. Louis Children's Hospital, over a period of years, no known near relative of 316 children with acute leukemia was known to have suffered from the disease except the twins described The only other twin in our series was a girl who died from acute monocytic leukemia at 2 years of age Her identical twin sister is healthy eight years later Certainly, so far as acute leukemia in children is concerned, the clinical incidence indicates the absence of any hereditary or familial factors in its etiology except in twins

The only other reported occurrences of leukemia in twins were by Dameshek, Savitz, and Arbor⁶ who observed identical twin brothers both of whom died from atypical chronic lymphatic leukemia at 56 years of age and within 10 weeks of each other and by Stobbe and Taeschner⁷ who reported identical twins who died from chronic lymphatic leukemia at the ages of 59 and 71 years

SUMMARY

Fraternal twins who died from acute leukemia at the ages of 18 and 24 months are reported with brief comment on the familial aspects of the disease

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The Influenza Virus.—The influenza A virus is a parasite whose only natural host is man To survive, it must pass continually from one human being to another, but from the very effectiveness of its means of transfer—it is inhaled and lodges in the respiratory tract—it soon finds itself in the position epidemiologists call "exhaustion of susceptible hosts" In other words, almost the entire population becomes immune In such circumstances there are two ways by which a highly transmissible virus can survive It may, like mumps or measles, live at the expense of the newborn and become a children's disease Or it may meet the situation, as the influenza virus does, by a transformation of character—a mutation that enables it to overcome its host's immunity The importance of such mutations is emphasized by their swift race over the world In 1946 a new type of A virus was isolated in Melbourne Australia is a long way from the great centers of population in the Northern Hemisphere But within a year the new virus was causing widespread influenza in those distant places Influenza vaccines from previous types of virus were powerless against that sudden epidemic of February, 1947 Their failure, incidentally, was largely responsible for our first serious recognition of the importance of the influenza viruses' continual change in type—F M Burnet, M.D., The Influenza Virus, *Scientific American*, April, 1953

MYOCARDIAL INFARCTION IN PREGNANCY

REPORT OF A CASE WITH NORMAL SPONTANEOUS DELIVERY SEVEN MONTHS LATER

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This case is being reported because of the paucity of information on myocardial infarction in pregnancy. No reference to acute myocardial infarction during pregnancy can be found in such standard textbooks as Eastman,¹ Greenhill,² Beck,³ and others.⁴ Moreover, only one cardiology reference book was noted to mention the subject. Levine⁵ states that he had treated one woman, aged 22, for myocardial infarction and that subsequently she had gone through a pregnancy. A search of current literature revealed no account of the conduct of pregnancy during or immediately following myocardial infarction. Therefore, it seems likely that the analysis of this case may help others in managing similar cases and serve to stimulate additional reports on the same subject.

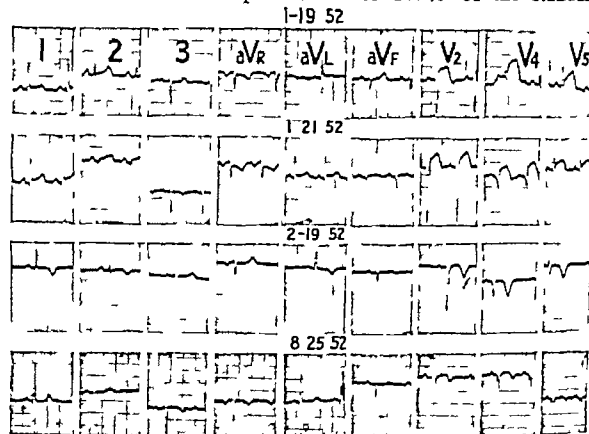
REPORT OF CASE

A 34-year-old white woman was first seen on Jan 18, 1952, at 1 a m. For two days she had noted severe substernal pain radiating to both elbows. That evening the pain had become constant and prostrating in character. She was slightly relieved standing up or sitting up and extremely dyspneic lying down. Moreover, she reported her last menstrual period had begun on Nov 17, 1951. In three previous pregnancies terminating in normal spontaneous delivery she had given birth to three normal children, aged 14, 12, and 3 years at this time. Her third labor had totaled six hours. During her second pregnancy there was a history of toxemia, with edema of the legs, albuminuria, and elevation of the blood pressure. Since that time she had continued to have moderate hypertension. Nocturia was denied. No family history of hypertension and cardiovascular renal disease was elicited. One great aunt was diabetic.

When she was first examined at home, physical examination revealed a well-developed, well-nourished woman who appeared acutely ill. Her oral temperature was 99.8 F, pulse 96, respiration rate 20, and blood pressure 158/98 mm Hg. Her face was flushed. Ophthalmoscopic examination of the fundi revealed no abnormality. Palpation, percussion, and auscultation of the chest also revealed no abnormalities. Examination of the heart revealed the sounds of fair quality with no murmurs and no enlargement. The abdomen appeared normal, with no tenderness nor organ enlargement. No abnormalities of the extremities were noted. She was hospitalized at 6 a m Jan 18, 1952, following the reading of an electrocardiogram indicating an acute anterior wall myocardial infarct.

Laboratory Findings—On Jan 19 the red blood cell count was 5,200,000, the hemoglobin level 14.5 gm per 100 cc, and the white blood cell count 18,000, with 8% band forms, 82% filaments, and 10% lymphocytes. On March 6 the red blood cell count was 4 million, the hemoglobin level 11.3 gm, and the white blood cell count 8,800, with 11% band forms, 71% filaments, 1% eosinophils, 16% lymphocytes, and 1% mono-

cytes. The sedimentation rate on Jan 19 was 15 mm per hour, on Jan 21 15 mm, on Jan 22 25 mm, and on March 6 23 mm. On Jan 18 the blood glucose level (fasting) was 193 mg per 100 cc and the blood urea 8 mg. On Jan 22 the serum cholesterol level was 186 mg, cholesterol esters 37 mg, and blood lipids 522 mg. On Feb 22 the alkaline phosphatase level was 3.1 Bodansky units, calcium 10.2 mg, phosphorus 3.1 mg, albumin 4.1 gm, and globulin 2.0 gm. On Jan 18 the prothrombin time was 13 seconds. On Feb 2 results of a glucose tolerance test were reported as follows: The fasting level was 104 mg per 100 cc, at 30 minutes 226 mg, at 1 hour 364 mg, at 2 hours 386 mg, and at 3 hours 286 mg. The urinary glucose levels were as follows: the fasting level, 0, at 1 hour 1+, at 2 hours 3+, at 3 hours 3+, and at 4 hours 3+. Wassermann and Kahn tests were negative. Six routine urine samples revealed a specific gravity ranging from 1.022 to 1.012, a trace of albumin on two occasions, and a trace of glucose on two occasions. No sediment was found except on Jan 30, when from 50 to 75 white blood cells per high power field were found, and the urine smear revealed many gram-negative bacilli. *Escherichia coli* were found on culture. Results of renal function tests were as follows: On Feb 18 the result of a phenolsulfonphthalein test in the first 15 minutes was 95 cc with 10% dye, in the next 45 minutes 35 cc with 30% dye, and in the second hour 55 cc with 10% dye. On Feb 18 the urea clearance in the first samples was 50 cc or 93% of the standard clearance with average normal function and in the second sample 56 cc or 103% of the standard



Comparison of serial electrocardiographic tracings of the patient. The first two electrocardiograms reveal the acute changes of anterior myocardial infarction. The last two electrocardiograms reveal residual changes with marked regression.

clearance with average normal function. Serial electrocardiograms revealed the classical picture of acute anterior myocardial infarction (figure). On Feb 16th an x-ray film of the chest revealed the lung fields to be clear, with slight enlargement of the left ventricle, the transverse cardiac diameter measured 12.5 cm and the transverse thoracic diameter measured 25 cm. A second chest film taken on Sept 16 showed no change from the previous film.

Hospital Course—During hospitalization, treatment consisted of administration of bishydroxycoumarin (Dicumarol), papaverine, sedative agents, including morphine, and an 800-calorie diet. During the first week the patient had a low-grade fever and substernal pain persisted, but after the first week these symptoms disappeared completely. Bishydroxycoumarin therapy was maintained for 28 days, and the prothrombin time was kept between 30 and 35 seconds. The blood pressure was 190/130 mm Hg on admission and gradually dropped to 106/68 on the 27th day of hospitalization. On Jan 28 the blood pressure in both arms was 150/110 and in both legs 240/210. Tests for pheochromocytoma were not done. Examination of the urine four times daily revealed an occasional trace of glucose during the day or night. The patient's weight dropped from 140 lb (63.6 kg) at the time of admission to 126 lb (57.3 kg) at the time of discharge from the hospital. At the time of the initial examination of the chest, a few fine crepitant rales were heard.

From the Department of Obstetrics and Gynecology, Buffalo General Hospital and University of Buffalo.

1 Eastman N J. Williams Obstetrics, ed 10. New York: Appleton Century-Crofts, 1950.

2 Greenhill J P. Principles and Practice of Obstetrics, ed 10. Philadelphia: W B Saunders, 1951.

3 Beck A C. Obstetrical Practice, ed 5. Baltimore: Williams & Wilkins, 1951.

4 Jones A M. Heart Disease in Pregnancy. New York: Grune & Stratton, 1951. p 1.

5 Levine S A. Clinical Heart Disease, ed 4. Philadelphia: W B Saunders, 1951. pp 81 and 116.

at the right base, after the first week the chest remained clear. Auscultation of the heart revealed a 2+ soft systolic murmur at the apex and a 1+ faint systolic murmur at the pulmonic area. The patient was kept on bed rest for six weeks, after which she gradually resumed normal activities and was discharged from the hospital on March 13, 1952.

After considerable discussion it was finally decided to allow the patient to carry the pregnancy to term. Although the patient had considerable anorexia, epigastric distress, and very slight edema of the ankles, after hospitalization she had no dyspnea nor orthopnea. On physical examination no abnormality of the lungs was revealed. The heart sounds continued to be of good quality, usually with murmurs. The regimen of restricted activity continued, including 12 hours of bed rest per day plus the usual dietary restrictions.

On Aug 24 the patient reentered the hospital, complaining of severe epigastric pain and uterine contractions every 12 minutes. At the time of hospitalization she weighed 138 lb (62.7 kg), her pulse was 92, and her blood pressure was 180/103. On Aug 26 with the patient under low saddleblock spinal anesthesia a full term normal baby boy, weighing 6 lb 10 oz. (3,005 gm), was delivered by low forceps.

On Aug 27 both tubes were ligated with the patient under intravenous thiopental (Pentothal) sodium anesthesia. The postpartum course was uneventful. The fasting blood glucose level was 81 mg. and 98 mg. on two successive days, and the digestion glucose level was 222 mg. Because of the latter finding it was concluded that this patient had mild diabetes mellitus. The infant's bleeding time was three minutes and the clotting time one minute, but unfortunately his prothrombin time was not obtained. On Sept 3, one week after delivery, the mother and infant left the hospital in good condition.

COMMENT

This case illustrates the value of a conservative approach to the problem of pregnancy associated with myocardial infarction. Therapeutic abortion was seriously considered because of the acknowledged strain of advancing pregnancy on an already severely damaged heart. It was recognized that the cardiac output is increased 50% in the last trimester of pregnancy,⁸ accounting for the consequent danger of congestive heart failure that might be expected to occur in 25% of cases of myocardial infarction some time after the acute episode.⁹ During this acute episode, however, it seemed unwise to consider interference because shock, the soft necrotic cardiac tissue, and the possibility of systemic or pulmonary emboli contraindicated anything other than supportive therapy.

During pregnancy, we believe that anticoagulant therapy should be given¹⁰ as in any similar case, for it seems to have no deleterious effect on placental circulation, uterine behavior, nor the condition of fetal blood. In this instance, the bleeding and clotting time of the infant immediately after delivery were normal. We believe that there were distinct advantages in waiting seven months for the occurrence of normal labor rather than adding stress of induced abortion during the second or third month of pregnancy. Certainly, we could assume that the scar in the heart would be firmer at term. We also felt we could anticipate less cardiac strain during a normal delivery in a multipara whose previous labor had been easy than would occur with delivery by cesarean section. This patient had a diabetic blood glucose tolerance curve at the time of the acute infarction and an elevated digestion blood glucose seven months later. Consequently, it was concluded that this patient had diabetes mellitus de-

spite the fact that it is known that many patients with acute myocardial infarction have diabetic glucose tolerance curves.⁷

SUMMARY AND CONCLUSIONS

A 34-year-old white woman with mild diabetes mellitus and moderate essential hypertension sustained an acute anterior wall myocardial infarct when two months' pregnant. She made a good recovery and carried to term without incident and delivered a normal full-term living child. Although no definite conclusions can be based on this experience, it would seem plausible to suggest that coincident pregnancy should not interfere with nor alter the management of myocardial infarction and that all usual measures, including anticoagulant therapy, are indicated. When the patient survives an initial episode in the first trimester, there is ample time for the heart to regain considerable reserve and the pregnancy may be carried to term with a normal delivery—the latter course probably involving less cardiac strain than interruption of the pregnancy earlier in the course of myocardial recovery.

216 Summer St (Dr Randall)

6 Adamson D L. Paper read before the Interurban Obstetrical & Gynecological Society Toronto Ontario Oct. 13 1951

7 Ellenberg M Osseman K E and Pollock H Hyperglycemia in Coronary Thrombosis *Diabetes* 1:16-21 (Jan Feb) 1952

VALUE OF ROUTINE BLOOD SUGAR TESTS IN THE DETECTION OF DIABETES MELLITUS

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and

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For the past 30 years, it has been the practice of our group to perform routine blood sugar tests on all new patients. Because we believe that this is an important method of detecting diabetes, this paper is presented in order to illustrate some of the results we obtained. Our method is advocated for general use in office practice. If all physicians who demand that a complement fixation test for syphilis be performed on all patients would obtain a blood sugar test as well, many cases of early diabetes would be detected.

MATERIALS AND METHODS

This study presents data on the number of new patients in our practice who, solely because the initial blood sugar level was elevated, were later proved to have diabetes. A total of 2,357 consecutive patients entering all services of the diagnostic division of the Cleveland Clinic constitutes the basis of this survey. The majority of these patients were adults, many of them were past middle age. They applied for care during the four week period between Jan 10 and Feb 7, 1951. The total includes 57 patients who had either symptoms of diabetes or previously recognized diabetes or who exhibited glycosuria that would have led to a diagnosis of diabetes on the original examination.

From the Cleveland Clinic and the Frank E Bunts Educational Institute

Blood sugar determinations were made by the modified Meyer's picric acid method. A comparison of this method with Benedict's and the Somogyi-Nelson procedures for blood glucose determination showed no significant differences. Hyperglycemia was considered to be present if the blood glucose levels were above a line drawn connecting the successive points on the following time curve: fasting blood glucose, 110 mg per 100 cc, one-half hour after a meal, 200 mg, one hour after, 180 mg, two hours after, 140 mg, and three or more hours after a meal, 110 mg. In all patients with hyperglycemia in whom it was practical, a glucose tolerance test was performed. If this was not possible, a blood sugar determination was repeated two and one-half to three hours after a meal, and an attempt was made to have the meal contain 100 gm of carbohydrate.

RESULTS

There were 113 patients with no history of diabetes in whom tests demonstrated some degree of hyperglycemia without glycosuria on the first urinalysis. The diagnosis of diabetes would, therefore, not have been made in any

Summary of Results of Follow-Up Studies of 113 Patients Suspected to Have Diabetes on the Basis of Hyperglycemia Alone

Range of Blood Sugar Level	No of Patients Suspected to Have Diabetes	No of Patients in Whom Diagnosis Confirmed *	No of Patients in Whom Diagnosis Refuted *	No of Patients Not Followed Up
111-120	49	6	15	29
121-130	18	3	4	11
131-140	15	7	5	3
141-150	6	1	2	3
151-160	3	1	1	1
161-170	2	1	0	1
171-180	5	1	1	3
181-190	6	1	3	1
190 or above	10	2	7	1
	113	22	38	53

* Diagnoses were confirmed or refuted by results of second blood sugar determination and/or glucose tolerance test.

of these patients if a blood sugar test had not been performed. In only 60 of these patients with hyperglycemia did we conduct further studies to corroborate or refute the tentative diagnosis. There were many reasons for which further investigations were not carried out in the other 53. Many patients lived some distance from the clinic and wished to have recommendations for repeated blood sugar or glucose tolerance tests sent to their attending physicians at home. Some were seriously ill of

other diseases that shortened life expectancy and that rendered any evaluation of borderline blood sugar levels of little importance. In some cases, the physician in charge was not convinced of the need for further tests, since hyperglycemia was slight or questionable, such as blood sugar levels obtained while the patient was in a fasting state or three hours after he had eaten that were only slightly above the 110 mg per 100 cc range. Attention is directed, however, to the fact that, of 20 patients with blood sugar levels between 110 and 120 mg per 100 cc while in a fasting state or three hours after eating, investigation showed 5 to have undiagnosed diabetes. A few patients could not be followed-up other than by repeating the fasting blood sugar test. In some of these patients, we were obliged to use a normal fasting blood sugar level to refute a tentative diagnosis of diabetes that had been made on the basis of hyperglycemia one to three hours after eating. In doing this, some patients almost certainly have been excluded from the diabetic group who would have been included had they undergone a glucose tolerance test.

In the table, the number of patients with hyperglycemia without glycosuria is shown and the distribution indicated. As might be expected the largest number lies in the groups having blood sugar levels closest to normal. Little difference is shown in the frequency of diabetes found at the various original blood sugar levels. This is because the time that elapsed between eating and the time of the test is considered in the interpretation of each value. In most instances, the actual elevation of blood sugar above the normal was slight. As mentioned before, 53 patients were not studied by us after the first tests. Of the 60 investigated, 22 new diabetic patients were found. If the remainder had been similarly studied and had the same incidence occurred, 16 more cases of diabetes would have been recognized.

COMMENT

The insidious onset of diabetes is a considerable hindrance to its recognition, since clinical symptoms are usually absent.¹ As is generally recognized, a single urinalysis in a diabetic patient is often sugar-free, especially in patients in whom the disease is mild.

The importance of detection of diabetes while the condition is mild depends eventually on two chief factors, first, the number of people who have diabetes and, second, whether or not early treatment and control as complete as is now possible can lessen or prevent serious complications, such as renal failure, blindness, or arteriosclerosis. The incidence of diabetes in our population has been variously estimated in the past few years at 1%² and 1.7%,³ and it has been calculated that it will eventually involve 2.1% of men and 3.8% of women.⁴

There are good reasons for believing that complete control leads to fewer complications. The benefit of complete control is recognized by Frederick M. Allen and Elliot Joslin, two great students of diabetes. Important statistical studies also support this view. For example, Wilson⁵ and Root⁶ showed that patients in whom careful control was maintained for more than 20 years had fewer complications than those who were managed less carefully. White⁷ showed that children with severe diabetes

1 Editorial: Diabetes—A Neglected Disease—And What Should Be Done About It. *New England J Med* 232: 237 (Feb 22) 1945.

2 Beardwood J T Jr. Report of Diabetes Surveys in Philadelphia. *Am J Digest Dis* 11: 345-349 (Nov) 1944.

3 Wilkerson H L C and Krall L P. Diabetes in New England Town Study of 3,516 Persons in Oxford, Mass. *JAMA* 135: 209-216 (Sept 27) 1947.

4 Marks H H. Recent Statistics in Diabetes and Diabetics. *M Clin North America* 31: 369-386 (March) 1947.

5 Wilson J L, Root, H F and Marble A. Prevention of Degenerative Vascular Lesions in Young Patients by Control of Diabetes. *Am J N Sc* 221: 479-489 (May) 1951.

6 Root H F. Degenerative Complications of Diabetes. A Review. *J Clin Endocrinol* 12: 458-479 (April) 1952.

7 White P. Prognosis of Juvenile Diabetes. *Pediatrics* 9: 506 (April) 1952.

8 Boyd J D, Jackson R L and Allen J H. Avoidance of Degenerative Lesions in Diabetes Mellitus. *JAMA* 118: 694-696 (Feb 28) 1942.

were more susceptible to early and serious complications than those with a mild form of the disease, and Boyd⁸ presents data that indicate that children for whom a rigid discipline was prescribed had fewer complications than those for whom other regimens were prescribed. In Boyd's studies, only 2 of 42 patients who had childhood diabetes for 10 years or longer showed evidence of retinal hemorrhage. In the first of these two, diabetes had been present for 18 of her 20 years of life, and, in the second, there had been several years of noncontrol. Others⁹ disagree with this attitude toward control and believe that there is no convincing data to show that the severity of the disease and/or the degree of control parallel the frequency or severity of the complications. We believe that, unless more dependable and more conclusive data to the contrary can be produced, the safest course available includes early detection and early, careful treatment.

SUMMARY

In order to assess the value of routine blood sugar tests, the results in 2,357 consecutive new patients are reviewed. The group includes 57 patients (2.4%) who were known to have diabetes or in whom the disease was diagnosed because of glycosuria. Diabetes was suspected in 113 patients who exhibited hyperglycemia but not glycosuria. Further blood sugar determinations or glucose tolerance tests done on 60 of these persons resulted in the discovery of 22 new diabetic patients (0.93%).

Assuming that a proportionate number of diabetic persons could be found among the patients with hyperglycemia but not glycosuria whom we did not follow up, there would have been 16 additional new diabetic patients or 0.68% of the whole group. If this additional group is added to the two groups previously considered, the incidence of diabetes in the entire group of patients is estimated to be 4%.

It is suggested that routine blood sugar determinations performed at random may increase the number of known diabetic patients from 2.4 to approximately 4%.

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9 Dolger H. Clinical Evaluation of Vascular Damage in Diabetes Mellitus. *J A M A* 134: 1289-1291 (Aug. 16) 1947

Injury to Spine During Lumbar Puncture—Symptoms of spinal injury characterized chiefly by severe back pain, muscle spasm over the lumbar area, tenderness over the lumbar spine, and difficulty in bending, stooping, or lifting, may occur immediately or as long as six months after lumbar puncture. In most of the cases [reported] intervertebral disc or vertebral injury occurred following difficult spinal puncture. Radiographic changes are characterized chiefly by thinning of the intervertebral disc and sclerosis, rarefaction and destruction of the vertebral body. These changes may occur from as early as eighteen days following the puncture to as long as six months after the puncture. The type and extent of the injury caused by the puncture needle is more important in regard to the rapidity of the onset of the symptoms than is the age of the patient or the purpose of the puncture. Treatment of the condition consists essentially in proper immobilization of the spine supplemented by antibiotic therapy if osteomyelitis develops. Emphasis is made of the necessity for sterile technique and careful introduction of the needle in performing lumbar punctures. Utilization of a different level should be practiced if spinal fluid is not obtained easily at the original puncture site.—S. F. Redo, M.D., Spinal Complications Following Lumbar Puncture. *Surgery*, May, 1953

SURVIVAL FOR TWENTY-NINE YEARS IN CHRONIC LYMPHOCYTIC LEUKEMIA

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and

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The diagnosis of leukemia is considered a death sentence, and, in older age groups, it produces an unwarranted degree of fear on the part of patients with chronic leukemia as well as in their relatives. The average length of life in 129 patients with chronic lymphocytic and 236 patients with chronic myelocytic leukemia collected from various sources was reported as 3.52 and 3.34 years, respectively, by Wintrobe and Hasenbush.¹ Moffitt and Lawrence² selected 16 patients with chronic lymphocytic leukemia and 15 patients with chronic myelocytic leukemia of long duration and calculated the average rates

TABLE 1—First Available Laboratory Report of Patient in Case Report

	Findings *	Normal
Color Index	0.75	1.0
Erythrocytes	5,000,000	4,500,000 to 5,000,000
Leukocytes	48,800	6,000 to 10,000
Hemoglobin	75%	100%
Polymorphonuclear neutrophils	12.5%	70%
Eosinophils	1%	1.2 to 4%
Mast cells	0.5%	1.40 to 1.2%
Small lymphocytes	84.6%	20 to 25%
Large lymphocytes	}	5 to 10%
Large mononuclear cells		
Transitional cells	0	Less than 1%
Neutrophilic myelocytes	0	0
Eosinophilic myelocytes	0	0
Basophilic myelocytes	0	0
Normoblasts	0	0
Megakaryoblasts	0	0
Microblasts	0	0
Macrocytes	0	0
Microcytes	0	0
Polkilocytes	0	0
Polychromasia	0	0
Plasmodium malariae	Negative	0
No leukocytes counted	200	
Widal reaction		Negative
Parasites or bacteria		0
Coagulation (Brodie Appa)		8 to 8 min
Agglutination and hemolysis		
Wassermann reaction		Negative
Gonorrhea complement fixation		Negative

* A number of fragmentary nuclear structures poor in chromatin were present. Thirty of these fragile cells were observed in counting of the 200 leukocytes.

of survival after diagnosis as 8.16 and 6.33 years. Many individual patients, however, exceed this average survival rate by many years. These patients can often be kept in happy, productive states for long periods of time by careful management. McGavran's³ report of lymphocytic leukemia of 25 years' duration is of unusual interest.

We report a case in which the well-documented diagnosis of lymphocytic leukemia was made in 1923. The patient died 29 years later, in 1952. We have been unable

From the Scripps Metabolic Clinic

1 Wintrobe M. M. and Hasenbush L. L. Chronic Leukemia: The Early Phase of Chronic Leukemia: the Results of Treatment and the Effects of Complicating Infections. A Study of Eighty-Six Adults. *Arch. Int. Med.* 64: 701-718 (Oct.) 1939

2 Moffitt, H. C. Jr. and Lawrence, J. H. Chronic Leukemia of Long Duration with a Report of 31 Cases with a Duration of Over Five Years. *Ann. Int. Med.* 30: 778-790 (April) 1949

3 McGavran C. W. Lymphatic Leukemia of Twenty Five Years Duration. *Ann. Int. Med.* 12: 396-402 (Sept.) 1938

to find a report of a patient with leukemia who survived as long as 29 years

REPORT OF A CASE

A white, married, retired businessman, aged 73, was referred to us for treatment with radioactive phosphorus on June 12, 1951. His chief complaint was fatigue, which he had noted for approximately one year.

The present illness began in April, 1923, at which time the patient was admitted to the Broad Street Hospital in New

York City for treatment of an infected mosquito bite on the left side of his head. The leukocyte count at that time was said to be 65,000 per cubic millimeter, and a diagnosis of lymphocytic leukemia was made. X-ray therapy was started, and potassium arsenite (Fowler's) solution was given by mouth. The patient retained many of the copies of his blood counts, and the earliest available count was made on Dec 28, 1923 (table 1).

Several courses of x-ray treatment were given between 1923 and 1928. The patient retired from business in 1925 because of the diagnosis and established residence in the Los Angeles area of California. No x-ray treatment was given from 1928 to 1931, and then an unknown number of x-ray treatments were given until 1945. No further specific treatment had been given after 1945. The patient stated that he had felt fairly well but that he tired rather easily until about one year before he was referred to us when he noticed increasing fatigue.

The patient had had pneumonia and pleurisy two or three times at the age of 6 or 7. Peritonsillar abscess occurred several times in early adult life until the tonsils were removed.

TABLE 2—Summary of Blood Studies and Treatment in Patient with Leukemia, 1923 to 1952

Date	Hemo- globin %	Red Blood Cells *	White Blood Cells *	Platelets	Lympho- cytes, %	Treatment	Remarks
12/28/23	76	5 000 000	48,800		88	X ray and potassium arsenite solution	Patient treated at Broad Street Hospital New York
3/ 8/24	78	4,900 000	53,890		84.8	X ray and potassium arsenite solution	
3/31/25	89	5 190 000	66 133		81.5	X ray and potassium arsenite solution	
3/ 8/26	89	4,890 000	70 600		89	X ray and potassium arsenite solution †	
3/11/29	85	5 100 000	108 200		88		
5/25/31			118 000			X ray	Patient treated at Scripps Metabolic Clinic
4/25/44	78	4 240 000	183,800		91	X ray	
10/ 2/45	79	4 600 000	80,800		93.5	X ray	
1/ /46			96 000				
2/ /47			150 000				
3/ /48			224 000				
9/ /49			235 000				
6/12/51	65	3 440 000	240 000		96		
8/ 9/51	67	4 080 000	420 000	110 000	97	Pas 3 mc orally	
8/24/51	65	3 600 000	270 000	122 000	97	Pas 3 mc orally	
10/ 2/51	61	3 000 000	275 000	106 000	99	Pas 3 mc orally	Mild generalized purpura
10/16/51	62	3,900 000	290 000	70 000	99.5	Pas 3 mc orally	
12/ 4/51	73	3 760 000	248 000	65 000		Pas 4 mc orally	
12/21/51	46	2,200 000	175 000	54 000		Transfusion 500 cc	
12/22/51						Transfusion 500 cc.	
12/24/51						Transfusion 500 cc	Mild skin eruption over arms thorax and thighs
12/26/51	75	3 600 000	149 000	45 000	98		
1/ 2/52	73	4 000 000	94 000	54 000	96		
1/18/52	71	3,530 000	160 000	70 000	100		
1/30/52	68	3,390 000	153 400			Cortisone 300 mg in 24 hr	
1/31/52						Cortisone 200 mg in 24 hr	Severe generalized exfoliative dermatitis
2/ 1/52						Cortisone 100 mg in 24 hr	
2/11/52	59	2,250 000	201 800		100		
2/15/52						Transfusion 500 cc	
2/21/52						Nitrogen mustard 6.1 mg intravenously	
2/22/52						Nitrogen mustard 6.1 mg intravenously	Dermatitis worse
2/26/52						Nitrogen mustard 6.1 mg intravenously	
2/27/52			157 000	80 000	100	Nitrogen mustard 6.1 mg intravenously	
3/ 6/52	68	2,260,000	181 000		100	Urethane 1 gm orally three times a day	
3/ 7/52						Transfusion 500 cc	
3/ 8/52						Transfusion 500 cc	Dermatitis markedly improved
3/10/52	71	3,470 000	112 600		88.5		
3/28/52	62	3 000 000	62 000		100		
4/ 2/52	51	2 500 000	39 000	90 000	90	Cortisone therapy discontinued Corticotropin (ACTH), 100 mg in 24 hr intramuscularly	
4/ 4/52						Corticotropin (ACTH) 75 mg per day intramuscularly	
4/ 5/52						Transfusion 500 cc	Dermatitis worse
4/ 7/52	67	2 670 000	45,200		100	Corticotropin (ACTH), 50 mg in 24 hr intramuscularly	
4/10/52	57	2 770 000	38 400		100	Corticotropin (ACTH) therapy discontinued	
4/17/52	47	2 700 000	27 700		99	Corticotropin (Aethar gel) 80 mg per day	
4/18/52						Urethane therapy discontinued Corticotropin (Aethar gel) therapy discontinued	

* Per cubic millimeter

† X-ray therapy and administration of potassium arsenite (Fowler's) solution continued through 1928

York City for treatment of an infected mosquito bite on the left side of his head. The leukocyte count at that time was said to be 65,000 per cubic millimeter, and a diagnosis of lymphocytic leukemia was made. X-ray therapy was started, and potassium arsenite (Fowler's) solution was given by mouth. The patient retained many of the copies of his blood counts, and the earliest available count was made on Dec 28, 1923 (table 1).

Several courses of x-ray treatment were given between 1923 and 1928. The patient retired from business in 1925 because

in 1913. An operation for "a ruptured appendix" was performed in 1935. The family history disclosed no instance of leukemia or other blood dyscrasia.

Physical examination revealed a well-developed man of average spare nutrition who did not appear ill. He was 69.5 in (176.5 cm) tall and weighed 140 lb (63.5 kg). Temperature, pulse, and respirations were normal. The blood pressure was 180/100 mm Hg. The skin and mucous membranes were normal. Mild hypertrophic changes of the finger joints were the only abnormalities of the skeleton and extremities. There

was no enlargement of the peripheral lymph nodes. The retinal arteries showed moderate narrowing and tortuosity and increased light reflexes, but further examination of the head and neck revealed no important abnormalities. On examination, the lungs were normal. The heart was not enlarged and the sounds were clear and regular. A soft systolic murmur was present over the precordium, with a maximum at the apex that was not transmitted. The tip of the spleen was palpable at the left costal margin, but no other abdominal masses were present. The external genitalia were normal. The prostate was slightly enlarged but of normal consistency. Deep tendon reflexes were normal, and no abnormal reflexes were present.

Laboratory examination revealed a hemoglobin level of 9.8 gm per 100 cc. (65%), red blood cell count 3,440,000 per cubic millimeter, and white blood cell count 240,000 per cubic millimeter, with a differential count of 200 cells that yielded 96% lymphocytes and 4% neutrophils. The lymphocytes were predominantly mature, a moderate number of smudges were present, there was slight anisocytosis of erythrocytes, and the platelets were decreased to 110,000 per cubic millimeter. The bone marrow was hyperplastic, the megakaryocytes were normal in appearance and distribution, and the lymphocytes were mature. The differential count revealed 95.1% lymphocytes, 0.6% myeloblasts, 2% neutrophils, and 2.3% normoblasts. The blood type was group O, Rh positive. The bleeding time was 3 minutes, and the clotting time was 16 minutes by the Lee and White's method (normal for this laboratory, up to 20 minutes). Clot retraction was complete in 24 hours. Reaction to the Kahn test was negative. On urinalysis, the fluid was clear and straw colored. The specific gravity was 1.016, and there was no albumin or sugar. The sediment contained occasional red and white blood cells and hyaline casts. The blood sugar was 98 mg per 100 cc and the urea 56 mg per 100 cc. The stool contained no blood, ova, or parasites. A roentgenogram of the chest showed that the right costophrenic angle was obliterated by adhesions. There was no evidence of enlarged mediastinal lymph nodes. Another roentgenogram showed that the lower edge of spleen was just below costal margin. An electrocardiogram showed nothing abnormal.

There was some question as to the desirability of further specific treatment of the leukemia but it was undertaken because of the patient's complaint of increasing fatigue. As he did not desire another course of irradiation, 16 mc of radioactive phosphorus were given in small, divided doses by mouth between Aug 9, 1951, and Dec 4, 1951. There was no important change in the patient's condition, and transfusions were given in December, 1951, because of increasing anemia. A generalized exfoliative dermatitis occurred in January, 1952, and the patient's condition deteriorated steadily with an increase in nitrogen retention until sudden death occurred on April 19, 1952. The blood urea had risen to 120 mg per 100 cc on April 18, 1952, the day before death, although urinary output had averaged 1,000 cc every 24 hours. Phenobarbital could not be ruled out as a cause of the exfoliative dermatitis, although skin biopsy revealed specific infiltration with lymphocytes. In two other patients with chronic lymphocytic leukemia, we have had similar experiences with exfoliative dermatitis that followed irradiation and that presented no indications of drug sensitization. It was felt that little was accomplished by our attempts at treatment (table 2).

Autopsy was performed on April 21, 1952, and indicated (1) chronic lymphocytic leukemia, (2) arteriosclerosis, (3) coronary arteriosclerosis, grade 2 and 3, (4) nephrosclerosis, grade 3 to 4, (5) occlusion of the left circumflex coronary artery, and (6) small, left posterior myocardial infarction.

SUMMARY AND CONCLUSIONS

Survival for 29 years is reported following well-documented diagnosis in a case of chronic lymphocytic leukemia. It is felt that an optimistic viewpoint is desirable in chronic leukemia, as the life expectancy of certain patients far exceeds that reported to be the average in large series of patients.

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CHEMICAL LABORATORY

This is the second of several reports on cigarettes, cigarette smoke, and filters by the Chemical Laboratory of the American Medical Association. The first report appeared in THE JOURNAL, July 4, 1953, page 917.

WALTER WOLMAN, PH D, Director

A STUDY OF CIGARETTES, CIGARETTE SMOKE, AND FILTERS

2 Special Low Nicotine Cigarettes

There is considerable difference in the nicotine content of the various types of tobacco used in cigarettes. Bailey and Petre¹ and Bogen² reported the following approximate values for nicotine content of several types of cigarettes:

Type of Cigarette	Approximate Content % Nicotine
Blended	1.0-2.7
Virginia (flue-cured)	2.5-3.4
Levantine	1.0-1.5
Denicotinized	0.8-1.4
Puerto Rican	0.8-1.2

A typical modern blended cigarette contains approximately the following proportions of tobacco¹:

Flue-cured	60%
Burley	15%
Maryland	10%
Levantine types	15%

Some of the more inexpensive brands omit the Levantine types.

The nicotine content of flue-cured tobaccos was found to range from an average of 2.36% for the low nicotine South Carolina tobacco (U S type 13) to 3.36% for the higher nicotine Danville tobacco (U S type 11)³ for the five years 1928 through 1932. Burley tobaccos, on the other hand, contain more nicotine than flue-cured tobaccos. A nicotine content of about 3.5% is probably representative for this type. Maryland tobacco and Levantine types have a relatively low nicotine content. Bailey and Petre¹ found 2.12 and 2.26% nicotine in the leaf web of a sample of Maryland tobacco from the 1930 season.

These nicotine values are subject to considerable variation, depending on the position of the leaf on the plant, weather conditions during the growing season, type of tobacco, region of growth, and cultural practices. The values reported by Bailey and Petre¹ for the Maryland tobacco grown in 1930 were high because hot, dry weather had prevailed during the growing season. A sample of the same grade and type from the 1932 crop gave values of 0.86 and 0.83% nicotine.

Many investigators have reported that the nicotine content of the leaf increases from the bottom to the top of the plant. Darkis and his collaborators⁴ reported that the nicotine in flue-cured tobacco from a good growing season ranged from 1.94% in the lower leaves (secured by the first priming—a method of harvest in which leaves are pulled from the plant as they mature) to 3.76% in the upper leaves (the sixth priming), with a composite sample containing 3.04% nicotine. This

1 Bailey C F and Petre A W. The Modern Cigaret Industry. J Indust Engin Chem 29:1119, 1937.

2 Bogen E. The Composition of Cigarets and Cigaret Smoke. J A M A 93:1110-1114 (Oct 12) 1929.

3 Darkis F R, Dixon L F and Gross P M. Flue-Cured Tobacco: Factors Determining Type and Seasonal Differences. J Indust, Engin Chem 27:1152-1157, 1935.

4 Darkis F R, Dixon L F, Wolf F A and Gross P M. Flue Cured Tobacco: Correlation between Chemical Composition and Stalk Position of Tobaccos Produced under Varying Weather Conditions. J Indust Engin Chem 28:1214-1223, 1936.

entire range will not appear in tobacco destined for cigarettes, however, since generally the leaves from near the middle of the plant are employed for this purpose. Most of the remainder goes into other smoking mixtures and chewing tobacco.

Tobaccos for the so-called denicotinized cigarettes are prepared from regular tobaccos. According to Bailey,⁵ they are usually prepared by a resweating process. This is accomplished by treatment of the tobacco with superheated steam or by heating in vacuum chambers. Numerous other processes are based on the extraction of the nicotine by organic solvents or on the treatment of the tobacco with the vapors of an aqueous ammonia solution. These vapors decompose the naturally occurring salts of nicotine (oxalate, acetate, citrate, and malate), and the free nicotine is entrained in the vapors.

Certainly the term "denicotinized" is a misnomer, as it would connote "nicotine free" to the uninitiated, and the presently available brands contain about one half the nicotine found in 'regular' cigarettes. Pyrik⁶ has proposed the terms 'nicotine poor' for tobacco containing 0.5 to 0.6% nicotine and 'nicotine free' for tobacco containing 0.1 to 0.15% nicotine. None of the tobaccos examined are nicotine-free in this sense.

The tobacco used in the cigarette designated as brand G in this report was developed by the Kentucky Agricultural Experiment

The methods of analysis used and the conditions employed have been described in the first report.⁸ Briefly, 47 mm of each cigarette was smoked (two-thirds of a 'standard' 70 mm cigarette) using 35 ml puffs of two seconds duration taken once a minute.

Brand G is the only cigarette examined thus far that has contained significant quantities of normicotine. Normicotine differs chemically from nicotine in that the nitrogen atom of the pyrrolidin ring is not methylated. The figures in column 6 of the table were obtained by the method of the Association of Official Agricultural Chemists⁹ with the exception of the figure for brand G. These figures for brand G were obtained by the method of Bowen and Barthel,¹⁰ which quantitatively measures the amounts of both normicotine (0.45%) and nicotine (0.31%). The value found by the Association of Official Agricultural Chemists method for the total steam volatile alkaloids including normicotine was 0.79%.

As in the first report, the figures in column 8 of the average volume of mainstream smoke (smoke emerging from the puffed end of the cigarette) per cigarette were obtained by multiplying the average number of puffs required to smoke 47 mm of a cigarette by the volume of each puff (35 ml). The figures in column 10 showing the proportion of nicotine transferred from the smoked portion of the cigarette to the mainstream

Physical Characteristics and Analysis of Four Brands of Cigarettes

	1	2	3	4	5	6	7	8	9	10	11
	Date Sample Obtained	Average Weight of Cigarette Gm	Length of Cigarette Mm	Average Circum- ference of Cigarette Mm	Moisture in Tobacco %	Nicotine in Tobacco (Moisture Free Basis) %	Weight of Tobacco Actually Smoked (Dry Weight) Gm	Average Volume of Main stream Smoke per Cigarette Ml	Weight of Nicotine Found in Main stream Smoke per Cigarette Mg	Nicotine in Tobacco Actually Smoked which is Trans- ferred to Main stream Smoke %	Weight of Tars Found in Main stream Smoke per Cigarette Mg
Brand E	October, 1952	1.069	69.5	26.4	10.01	0.99	0.026	344	1.87	22	15.4
Brand F	April 1953	1.039	70.0	26.0	9.06	0.93	0.007	322	1.42	25	16.4
Brand G	April 1953	1.028	69.7	26.8	8.99	0.81 0.46*	0.004	331	0.67 0.16*	36 6*	23.2
Brand D	February 1953	1.094	70.0	26.5	10.71	2.02	0.035	356	2.74	21	17.8

* Normicotine

ment Station⁷ from three strains of low nicotine Cuba cigar tobacco obtained in 1933 from the Kaiser Wilhelm Institute. This tobacco was crossed with burley in order that the new variety should carry the recessive color factors of burley because burley is a light-colored tobacco when cured and light color is commonly associated in the mind of the public with mildness.¹¹ The varieties resulting from the crosses and back crosses of the low-nicotine cigar tobacco with burley are like burley but have a low nicotine content. They have been designated a subtype of burley and have been established as class 3, type 31-V, air-cured tobacco by the United States Department of Agriculture.

This report gives the results of smoking experiments on two brands of so-called denicotinized cigarettes, brands E and F, and one brand of cigarette containing the tobacco especially bred for its low nicotine content, brand G. Brand D, the "regular" cigarette from the first report,⁸ is again included for comparison.

5 Bailey E. M., Nolan O. L. and Mathis W. T. 'Denicotinized Tobacco' Conn. Agr. Expt. Sta. Bull. 295: 338-351, 1928.

6 Pyrik I. C. Über das Auftreten von Nicotin in Zigarettenträuch. Ztschr. f. Untersuch. d. Lebensmitt. 62: 95-98, 1931.

7 Valleau W. D. Breeding Low Nicotine Tobacco. J. Agric. Res. 78: 171-181, 1949.

8 A Study of Cigarettes: Cigarette Smoke and Filters. 1. Filter Tip Cigarettes. report of the Chemical Laboratory. J. A. M. A. 152: 917-920 (July 4), 1953.

9 Association of Official Agricultural Chemists. Official Methods of Analysis, ed. 7. Menasha Wis. The Collegiate Press. George Banta Publishing Company, 1950. p. 69.

10 Bowen C. V. and Barthel W. F. Determination of Nicotine and Normicotine in Tobacco. J. Indust. Engin. Chem. Anal. Ed. 15: 740-741, 1943.

smoke are again relatively constant as in the first report, with the exception of brand G.

The weight of nicotine found in the mainstream smoke as shown in column 9 shows that the smoke of the "denicotinized" brands E and F contains about one half the nicotine found in the smoke of a "regular" cigarette, brand D. The amount of tars in the smoke of these cigarettes does not differ materially from the tars found in the smoke of brand D as shown in column 11. The smoke of brand G contains significantly less nicotine than that of other brands but it contains a greater amount of tars.

The Cervix.—The abnormal cervix should be treated. All anatomic defects should be repaired, cauterized or coned away. There should be no erosion and no visible infection present. The anatomic and histologic external os should correspond. The bacterial flora of the vagina should also be examined. The acidity of the vagina should be aided by lactic acid douches and not by acetic acid in the form of bacterial laden vinegar that is so often prescribed, and the normal Döderlein bacillus should be restored and maintained if possible. Every woman should have her cervix examined at least once a year, between the ages of 38 and 55, twice a year is looked upon with approval by all well trained and experienced gynecologists. Every cervix must be examined with suspicion, and those patients with any irregular bleeding, hypermenorrhea, postcoital or postmenopausal bleeding should be repeatedly examined and treated by intelligent radicalism.—C. E. Galloway, M.D., The Abnormal Cervix, *The Surgical Clinics of North America*, February, 1953.

COUNCIL ON PHARMACY AND CHEMISTRY

REPORT TO THE COUNCIL

The Council has authorized publication of the following reports

R T STORMONT, M.D., Secretary

AN IMPROVED TEST OF SPERMICIDAL ACTIVITY WITHOUT DILUTION OR MIXING

Clarence J Gamble, M.D
Milton, Mass

Comparisons of the clinical effectiveness of contraceptive materials are difficult and subject to large errors because of the unavoidable variations in the correctness and regularity of their use. Attempts to limit observations to those who are regular users are disappointing, many who claim regularity as long as the method is successful may report irregularity of some duration after a pregnancy leads to detailed interrogation. These uncertainties in clinical testing have led to a search for laboratory procedures that may give an indication of clinical efficiency.

SPERMICIDAL TESTS INVOLVING MIXING AND DILUTION

Baker made a careful study of spermicidal powers by mixing equal quantities (0.3 cc) of semen with physiological salt solutions (0.9% sodium chloride) in which various concentrations of pure substances were dissolved. He determined the lowest concentration of the substance in the final mixture that would immobilize the sperms in human semen in 30 minutes.¹ In testing jellies and suppositories, he and his collaborators mixed 2 gm of one suppository with 6 cc of saline and found the greatest dilution of the filtrate that would stop the motion in 30 minutes.² He applied these tests to many pure substances and commercial contraceptives.

Voge recommended the study of motion of the sperms after shorter exposures. He measured immobilization times after mixing jellies with equal or double volumes of semen.³

To permit the study of many mixtures with the same ejaculate, Brown and Gamble⁴ used about 0.04 cc of semen. They based their comparisons on the period of time required for complete immobilization after thorough mixing. When equal quantities of semen and contraceptive material were mixed (approximating the ratio found in clinical use), the duration

of motility was so brief that distinctions could not be made between the more and the less active mixtures. Therefore, the contraceptive jelly was diluted with 0.9% sodium chloride solution. Final proportions of jelly, 0.9% sodium chloride, and semen of 1:4:5, respectively, gave conveniently distinguishable immobilization times. The recorded time was that of the immobilization of the last discoverable sperm. This method is used as one of the criteria for acceptance of contraceptive materials by the Council on Pharmacy and Chemistry of the American Medical Association.⁵

The 'saturation test' of Millman⁶ measures the quantity of human semen required in successive additions to 0.05 cc of jelly to immobilize the sperms within one minute after thorough mixing. For some mixtures, as much as 18 times the volume of the jelly is required. Under the usual clinical conditions this proportion would correspond to an ejaculate of about 90 cc. This is so far beyond the usual quantity that it seems doubtful that differences at such dilutions have clinical significance.

SPERMICIDAL TESTS WITH UNDILUTED CONTRACEPTIVE MATERIALS

Baker, Ranson, and Tynen² recognized that the ability to release immobilizing material without stirring and dilution was an important characteristic of a contraceptive mixture. In an experiment termed a diffusion test, the jelly or suppository was smeared over the bottom of a glass capsule and overlaid with 1.25 cc of human semen. At varying times portions of the latter were removed and examined for motility.

This modification seems a closer approach to postcoital conditions than mixing and dilution. However, the repeated sampling introduces a stirring not present in the vagina, and the procedure gives no indication whether the sample of semen examined comes from the portions in immediate contact with the spermicide or from the higher portions of the fluid.

AN IMPROVED DIFFUSION METHOD

To approximate vaginal conditions, a procedure has been developed in which sperms are observed in semen that is in direct contact with the spermicidal material. For convenience in presentation this will be described in the form considered most desirable. The experiments and reasoning that led to the steps and arbitrary dimensions recommended will be given subsequently.^{6a}

Semen, which is secured from young donors by ejaculation into a vial, is stored in an ice bath. It is customarily used for the test one to three hours after production.

Glass tubes of 2 mm internal diameter and approximately 2 cm long are prepared. Semen, held in a pipette of the eye dropper variety, is run into the end slightly more than 5 mm.

To secure a part of the contraceptive mixture that has not been affected by evaporation, the first portion (about 2 cc) of the contents of the flexible metal tube in which it is usually supplied is discarded. The jelly-filled mouth of the tube is placed against the end of the semen column. The latter has been slanted downward at about 45°, making it bulge slightly from the end of the tube to avoid trapping an air bubble between it and the jelly. The jelly is forced into the glass tube for a distance of 10 mm or more, displacing the semen, which is not allowed to reach the other end of the tube.

To prevent evaporation, paraffin (which melts at about 56°C) is heated to just above the melting point and is swabbed onto each end of the tube. Possible contamination of the semen with jelly from tubes that have been sealed previously is avoided by using one dish of paraffin for the semen ends of the tubes and another for those containing the jelly.

This tube, with another of the same diameter, is placed on a microscope slide and covered with a coverglass, the adjacent surfaces of the latter two have been smeared with microscope immersion oil. The length of the semen column is now measured, using the mechanical stage of the microscope, from the tip of the cone⁸ formed by the jelly to the nearest part of the meniscus where air and semen meet. If this is longer than 5.3 mm or shorter than 4.7 mm, the specimen is discarded.

The tube, in a horizontal position, is obliquely illuminated by a 60 candlepower automobile headlight bulb with a small filament, this light is placed close beyond the tube, and about

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From the Department of Anatomy of Harvard Medical School

1 Baker J R. The Chemical Control of Conception. London: Chapman & Hall Ltd, 1935. p 44.

2 Baker J R, Ranson R M and Tynen J. The Spermicidal Powers of Chemical Contraceptives. Approved Tests. J Hyg 37: 474 (July) 1937.

3 Voge C I B. The Chemistry and Physics of Contraceptives. London: Butterworth and Co Ltd, 1933. pp 80, 100 and 185.

4 Brown R L and Gamble C J. A Method of Testing the Relative Spermicidal Effectiveness of Contraceptives, and Its Application to 10 Commercial Products. Human Fertil 5: 97 (Aug) 1940. Gamble C J and Hamblin L. The Spermicidal Times of Contraceptive Jellies and Creams. 1949 report of the Council on Pharmacy and Chemistry. J A M A 148: 50 (Jan. 5) 1952.

5 New and Nonofficial Remedies. Philadelphia: J B Lippincott Company, 1952. p xxxii.

6 Millman N. A Critical Study of Methods of Measuring Spermicidal Action. Ann New York Acad Sci. 54: 806, 1952.

6a. In November 1952 Dr H Mizuno of Nagoya University, Japan, told the author that he had independently measured and compared spermicidal times under similar conditions. A description in Japanese of his procedure has subsequently been included in the Second Report of the Committee on the Study of Health and Welfare of the Department of Health and Welfare of the Japanese Government, Kyoto, December 1952.

7 For brevity the word jelly will be used to include jellies, creams, suppositories, and other semisolid contraceptive materials.

8 Friction of the walls of the tube as the jelly is forced in usually results in a cone at the end. The angle at the tip varies but is usually about 120°. Variations in this angle may result in variations in the surface of the jelly to which the semen is exposed but these do not appear extreme.

45° from the axis of the microscope. The position of the bulb is varied until the best possible view of the sperms is found. To avoid undue heating, the light is turned on (with a foot-pedal) only during moments of observation. A large opening in the microscope stage is convenient.

Motion of the sperms is observed through a 10x objective and 10x eyepiece. While the specimen is not being examined, it is kept in an incubator at 37 C, approximating vaginal temperature.

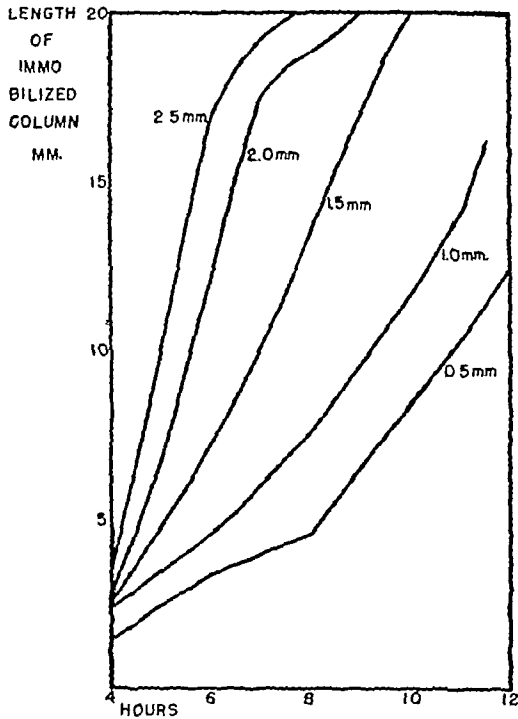


Fig. 1—Length of semen column in which motility has been abolished compared with time. The semen columns are 20 mm in length and 2.5, 2, 1.5, 1, and 0.5 mm in diameter. The curves of the larger diameters are averages of four tubes each; that of the smallest of two tubes. All tubes were filled nearly simultaneously with portions of the same ejaculate and contraceptive material.

The period of time is recorded from the addition of the jelly to the immobilization of the last discoverable sperm that is closer to the jelly than the nearest portion of the meniscus, thus, motion within the angular portion of the semen next to the meniscus is disregarded. The contraceptive material that has the shortest immobilization time as thus determined (using portions of the same ejaculate) is presumed to be the most active.

AGE OF THE EJACULATE

As found in the Brown and Gamble test, the spermicidal time decreases as the ejaculate becomes older. For accurate comparisons, therefore, tubes should be filled at approximately the same time as well as with portions of the same ejaculate.

DIAMETER OF THE SEMEN COLUMN

When the jelly was in contact with the semen in the tube, it was found that the zone in which the sperms were immobilized gradually increased in length. When this rate of increase was compared, using the same brand of jelly and identical semen, but different diameters of tubes, it was found that within the limits tested (0.5 mm to 2.5 mm) it was higher in the larger tubes. Results of a typical experiment are given in figure 1. Repeated comparisons of a series of commercial contraceptives showed that their ranking was not significantly altered by changes in the diameter of the tube used.

To reduce the hours needed for observation, a larger tube is desirable, but it makes observation more difficult. To balance these two factors, a tube with a diameter of 2 mm was chosen.

LENGTH OF THE SEMEN COLUMN

The effect of the length of the column of semen on the rate of immobilization was also explored. It was found that the shorter the column the more rapid the immobilization. Results of a typical experiment are given in figure 2. The ranking of contraceptive mixtures was not significantly dependent upon the length of semen column, provided the same length was used for each material.

Although a decrease in the column length has the advantage of shortening the observation period, it results in greater proportioned errors from variations in length. As a balance between these two factors, a length of 5 mm was selected.

LENGTH OF THE JELLY COLUMN

If the column of jelly is too short, the toxic materials might be exhausted too early, leading to a longer immobilization time. However, since diffusion in the noncirculating fluid of the jelly is slow, this would not appear to be an important factor. Tests showed no significant difference in immobilization time between columns of the same jelly that were 3 mm and 10 mm long. However, lengths of approximately 10 mm are customarily employed.

END POINT

The time required for the zone of immobilization to reach any chosen distance from the jelly might be considered to be related to the contraceptive effectiveness of the jelly. Experiments using various distances up to and including the entire length of the column were performed. Results of these tests ranked commercial contraceptive mixtures in approximately the same order as did the other experiments. It was found somewhat easier to determine the time when there were no motile sperms nearer the jelly than the meniscus, consequently this time was chosen for the end point.

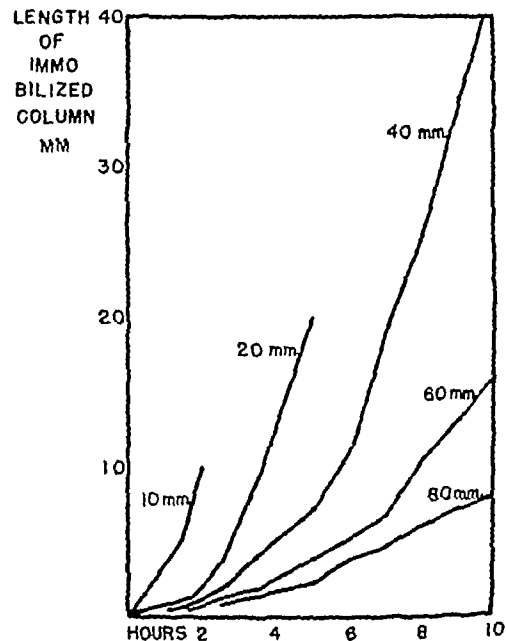


Fig. 2—Length of semen column in which motility has been abolished compared with time. The semen columns are 1.6 mm in diameter and 10, 20, 40, 60, and 80 mm long. Each curve is drawn from a single experimental tube filled nearly simultaneously with the others with portions of the same ejaculate and contraceptive material.

POSITION OF THE SEMEN COLUMN

The position of the tube greatly affects the rate of extension of the zone where the sperms are immobilized. No important differences were found between the rates when the tubes were in the customary horizontal position and when they were 45° or 90° from the horizontal with the semen below the jelly. However, when the tubes were placed vertically with the

semen above, immobilization extended less than 1 mm with even the most active jellies after six or seven hours of observation

CONVECTION IN THE SEMEN

A flow of sperms and other seminal particles is observed in most of the tubes placed horizontally. This flow is usually toward the jelly in the higher levels of the semen (nearest the objective with the microscope in the customary position) and away from it when the focus is shifted to the lower levels (A flow in the opposite direction is occasionally observed, at times there is no flow.) The flow appears to be laminar, moving slowly close to the surface, it first increases as the focus is shifted downward, then decreases as the center of the tube is approached. The flow moves more rapidly near the jelly, decreasing toward the other end of the semen column. It often decreases after hours of exposure to the jelly. Difficulties in measuring the depth of the focal plane below the inner surface of the glass have made it impossible to secure accurate comparisons of flows under varying conditions, however, flows as rapid as 1 mm per minute have been observed.

The findings suggest that the flow is caused by convection. Diffusion of solutes out of the jelly usually makes the semen denser, causing it to sink and to be replaced by less contaminated semen. The spread of the spermicidal ingredients by convection is compatible with the greater rate of extension of the immobilized zone within the larger tubes (fig 1), because the lesser surface friction of these tubes would allow more rapid circulation.

The theory of convection in the semen also makes understandable the slower rate of decrease of the zone of motility in the longer semen columns (fig 2). This finding would not be expected if the dissemination resulted from diffusion alone. The entire semen column dilutes the immobilizing materials via circulation, thus delaying their reaching effective concentrations.

This conception also explains the slow spread of immobilization in vertical tubes in which the semen is above the jelly. In this position the lower portions of the semen, made denser by diffusion from the jelly, tend to remain in contact with it, and the toxic materials rise only by the relatively slow process of molecular diffusion. The fact that the immobilization rate is decreased when the semen in the tube is above the jelly would not seem to invalidate the test as an indicator of clinical accomplishment. Cases in which postcoital units of semen are exposed to jelly only on their underside would appear to be extremely rare. All other forms of contact will produce convection.

VARIATIONS IN SEMEN SPECIMENS

When portions of the same ejaculate were utilized in the method described, repeated determinations of spermicidal time showed standard deviations of a single observation of about 12%. In a series of 26 observations using one tube of jelly, with different donors and different ejaculates, the standard deviation of a single measurement was 38% of the average. For the 43 mixtures of 1951 reported in the table, of which all immobilizations were complete before seven hours, the average standard deviation of a single observation was 35% of the corresponding mean. Ejaculates from different donors produced greater variations in test results than the ejaculates from the same donor. The ejaculates from certain donors were consistently above average, whereas those given by others were consistently below average.

While this indicates that several tests with a given material are required to secure an accurate diffusion spermicidal time, single comparisons of two or more preparations tested with the same ejaculate will divide the range of contraceptive mixtures commercially available into a number of groups that are significantly different from each other in spermicidal activity.

SPERMICIDAL RANKING OF SEVENTY COMMERCIAL CONTRACEPTIVES

Semen specimens, secured from eight medical students 21 to 26 years of age, were used to determine the immobilization times of 68 commercial contraceptive preparations secured in 1951 and 2 in 1952. Twenty to 40 materials were compared in each experiment with portions of the same ejaculate, by one or two observers.

The experiments were customarily discontinued after seven hours of exposure of semen to jelly. If motility was still present at this time the distance of the farthest motile sperm from the meniscus at the end of the semen column was recorded. A distance of 5 mm indicates what motion was seen in the space surrounding the cone that forms at the jelly's tip.

Each commercial preparation was tested six or more times (at least twice by each observer) with semen from five or more different donors. In addition, by preparing the capillary tubes in the order of decreasing spermicidal times, materials of approximately equal activity were tested with portions of the same ejaculate which were of about the same age.

The average of all tests made of a given material is recorded in table 1, except for those preparations that showed motility in one or more tests at the end of seven hours. For these the median value is used. If this exceeded seven hours, the length of the semen column still showing motility is also given.

It seems unwise to commend secret mixtures, since there is no assurance that when these materials are secured in the future they will have the same composition as the samples tested. Materials whose complete formulas are not available, and whose immobilization times were less than 253 minutes (the median of the group) are listed in table 1 as materials A, B, C, and D.

The average standard deviation of 35% indicates that differences between two averages of the six or more observations given in table 1 are significant (less than 1 chance in 20 of being accidental) if they differ by more than 40% of their mean.⁹ Since the longest observed times (more than 420 minutes) were more than nine times the shortest (46 minutes), the commercial preparations may be divided into several groups having significantly different spermicidal activities.

For an indication of the reproducibility of the test with different donors, spermicidal times similarly measured in 1950 and 1951, using the 1949 samples of the same materials with known formulas, are given in the third column of the table. Differences in the two average times for the 22 materials of which the formulas were known to be the same are, on the average, 18% of their means.

EXTRAPOLATION TO CLINICAL CONDITIONS

The spermicidal times from one half hour to more than seven hours for complete immobilization in the columns of semen 2 mm in diameter and 5 mm long are obviously not those anticipated in clinical contraception. Experiments showed that these periods of time decreased to a few minutes as shorter semen columns were tested in tubes whose diameters were 2 mm. In the vagina the entire surface of the droplets is presumably exposed to jelly, which should decrease the time still further. The effective surface of the droplets may be increased by distortion from a spherical shape.

Although the immobilization times under clinical conditions will undoubtedly be much shorter than those given in table 1, the uncertainties regarding the size and shape of the droplets of semen in the vagina after coitus make it impossible to estimate these times with any exactness.

COMPARISONS WITH THE BROWN AND GAMBLE SPERMICIDAL TEST

Spermicidal times of the same samples of commercial contraceptive materials which were determined by the Brown and Gamble method are given in table 2. When ranking by this method is compared with that by the diffusion test (table 1), the correlation is not high. In many instances, mixtures that are more effective after dilution and mixing are less active when access to the sperms is by diffusion out of the jelly or cream and by convection throughout the adjacent semen.

Since the direct and undisturbed contact of semen and contraceptive material in the diffusion test more closely imitates clinical conditions than does the Brown and Gamble procedure, it is probable that the diffusion test gives a better

⁹ The relative accuracy of the ranking may be somewhat greater since most of the experiments were arranged to test with the same ejaculate in tubes filled at nearly the same time materials previously found to be adjacent on the scale.

¹⁰ Gelatin and agar each showed moderate immobilizing activity.

TABLE 1—Diffusion Spermicidal Times

Material *	Length of Semen Column in which Motility Continued 1951 Samples Min	Length of Semen Column in which Motility Continued 1949 Samples Min
Rice 30% sodium chloride	27	28
Material A †	40	
Norforms	55	
Rice 20% sodium chloride	58	40
D C Jelly	71	
Lactikol Jelly	77	
Material B †	98	
Metakol	100	
Rice 10% sodium chloride	101	113
Inton Jelly with Oxyquinoline sulfate	118	
Zonitors	122	
Marvosan Jelly ‡	122	148
Gelaquin 10%2	126	
Locorol	128	
Material C †	130	
LaSavoy	142	
Gelakta 10%2	144	
Inton Jelly †	147	216
Verithol †	152	148
Femogene	154	
Zylactic Jelly †	158	214
L A J	160	
Blleo Jelly	171	
Vagagill †	170	107
Colagyn †	176	158
Cooper Creme Gel †	192	201
Koromex Jelly §	199	233
Material D †	204	
Uni Jel	204	
Inton Cream †	220	174
Lorophyn Jelly	227	
Warner's Suppository	227	
Oxy Zem †	238	173
Gyn-Jel	241	
Blo Lab Jelly	243	
Vagagill Suppository	240	
Uni Cream	248	
Servex	252	
Ortho Gynol Jelly	254	
Penetrox Jelly	257	
Millex Jelly	260	
Arc Creme Creemox †	263	
Cooper Creme §	263	201
Lorophyn Suppository §	278	230
Caprokol †	280	172
Lygenes Suppository §	280	
Medi phragm Jelly †	283	158
Marvosan Creme §	284	221
Hychex Jel	289	
Veritas kreme §	290	284
Contra Creme †	305	302
Stillman's Jell †	309	330
Lygel Jelly §	312	311
Certane Jelly	314	247
Preceptin	323	
Lanteen Cream †	343	302
Penetrox Creme	353	
Eugenic Creme †	357	400
Koromex Creme §	372	260
Ramsee Jelly §	410	420
Lactikol Creme	411	
Hychex Creme	420+	0.3
Arc Jelly, Jellak †	420+	1.0
Pernox Capsule §	420+	1.8
Volpar Paste †	420+	2.7
Murax Jelly †	420+	2.9
Certane Creme	420+	2.9
Lanteen Jelly †	420+	3.1
Nixon Creme †	420+	3.1
Blo-Lab Creme	420+	4.0
Millex Creme	420+	4.6
Glyeuthymenol Jelly †	420+	5.0
Ortho Creme §	420+	5.0

* Unless otherwise indicated complete or partial formula is given in addendum

† Formula unavailable

‡ Complete or partial formula in J A M A 143:50 (Jan 5) 1952

§ Formula in New and Nonofficial Remedies 1951

indication of the relative clinical effectiveness. A high ranking by both tests will give a "factor of safety," which seems desirable when contraceptive protection is important.

CHEMICAL FORMULAS OF THE MATERIALS TESTED

Each manufacturer was asked for permission to publish the formulas from which the contraceptive mixture was made. The information made available is indicated in table 1. To conserve space the formula is given in the addendum only when it is not available in previous publications. It is to be regretted that 26% are secret mixtures.

A SIMPLE CONTRACEPTIVE JELLY

The apparent convection resulting from increased density of the semen adjacent to the jelly suggested that the circulation of the spermicidal ingredients within the semen might be accelerated by adding a density producing solute to a jelly. Therefore, sodium chloride was incorporated (with mortar and pestle) in one of the less rapidly immobilizing materials and was found to greatly increase its apparent activity.

TABLE 2—Spermicidal Times* by the Method of Brown and Gamble of Contraceptive Jellies and Creams Secured in 1951

Five Minutes or Less			
Product	Min	Product	Min
Arc Jelly, Jellak		Koromex Jelly	
Blleo Jelly		Lactikol Creme	
Blo-Lab Creme		Lactikol Jelly	
Certane Creme		L A J	
Colagyn		Lanteen Jelly	
Contra Creme		Inton Cream	
Cooper Creme		Lorophyn Jelly	
D C Jelly		Lorophyn Suppository	
Eugenic Creme		Lygel Jelly	
Femogene		Marvosan Creme	
Hychex Jel		Metakol	
Jellak		Millex Creme	
Koromex Cream		Millex Jelly	
Gelakta 52	0	Vagagill	19
Warner's Suppository	0	Certane Jelly	25
Nixon Creme	7	Uni Jel	30
Blo-Lab Jelly	8	Volpar Paste	33
Lanteen Cream	8	Lygel Suppository	36
Oxy Zem	8	Arc Creme Creemox	51
Verithol	8	LaSavoy	64
Hychex Creme	10	Rice Flour + 30% sodium chloride	92
Pernox Capsule	10	Iocorol	100
Caprokol	11	Marvosan Jelly	118
Gelaquin 52	11	Inton Jelly with Oxyquinoline sulphate	137
Cooper Creme Gel	12	Rice Flour + 20% sodium chloride	211
Medi Phragm	12	Glyeuthymenol Jelly	210+
Penetrox Creme	12	India Gyn Jel	210+
Warner's Creme	14	Inton Jelly	210+
Uni Cream	19	Murax Jelly	210+
		Rice Flour + 10% sodium chloride	210+
		Stillman's Jell	210+

* Each time is the median of 5 or more determinations with semen from five different donors.

Because Vogt³ found that 3.4% sodium chloride in a semen mixture immobilized in 10 minutes, it seemed that the action might be caused by this salt's activity. Therefore, various concentrations were added to a 5% tragacanth jelly, a mixture which by itself was found to have little or no immobilizing power.¹⁰ A concentration of 10% sodium chloride in 5% tragacanth was found to immobilize the spermatozoa as well as did nine-tenths of the commercial contraceptives.

The possibility of preparing a homemade spermicidal jelly from a readily obtainable material was investigated. It was found that rice flour and water heated nearly to boiling for 30 minutes in a double boiler, with stirring, produced a jelly with a consistency approximating that of commercial contraceptives when the initial concentration was between 12 and 17% of the water by weight. Wheat and other flours, gelatin, and other jelly producing substances may also be used, rice flour was chosen for the test with the thought that it would be widely available in countries in which population control is intensely needed.

The immobilizing activities of jellies containing sodium chloride in a concentration of 0.1, 0.2, and 0.3 of the water by weight were tested and found to be among the more active commercial products (table 1)

Such rice flour and salt jellies in which the sodium chloride was 10 and 20% of the water were tested at the Margaret Sanger Research Bureau by three women. Daily vaginal doses of 5 cc each for 21 days did not cause subjective discomfort or evidence of irritation upon speculum examination

When the rice flour jelly was kept at room temperature in the laboratory, it usually turned sour in a few days. A jelly made with three times the recommended concentration of rice flour and salt has been found to last weeks at room temperature and to give a satisfactory consistency when diluted with twice its volume of cold water. Stirring for 3 or 4 minutes, followed by a lapse of 15 or more minutes and a slight amount of further stirring, was found to be desirable

It seems probable that a solution of sodium chloride, of 10% or stronger, will act as an effective spermicide. A rubber or marine sponge, a wad of cotton, or a pad of cloth can hold it in the vagina. It should be inserted before intercourse and retained for a sufficient period thereafter to allow immobilization of the sperm

SUMMARY

Clinical tests of contraceptive materials are unsatisfactory because of variations in the regularity of their use. Most laboratory tests which have been used to give indications of clinical effectiveness have been based on dilution and complete mixing, neither of which is present to the same extent in clinical use. A method is described for observing the immobilization of sperm in semen in direct contact with undiluted contraceptive jelly, cream, or suppository. Using the test with semen columns 2 mm in diameter and 5 mm long commercial contraceptive preparations have been compared and their rankings are given. It is concluded that density convection within the semen caused by diffusion into it of ingredients of the contraceptive jelly, is an important process in contraceptive action. A jelly having high spermicidal activity by this test was prepared by heating and stirring together sodium chloride, rice flour, and water

ADDENDUM

1 Complete quantitative formulas were supplied by the manufacturers for the following products

	%		%
Bilco Jelly 1951		Propyl p-hydroxybenzoate	0.05
Cetyl dimethyl benzyl ammonium chloride	0.05	Glycerin	12.0
Para tert. amyl phenol	0.15	Gum tragacanth	1.20
Lactic acid	1.0	Gum carob	2.50
Glyceoll	0.10	Gelaquin 1952	
Methyl p-hydroxybenzoate	0.05	Para tert. amyl phenol	0.1
Propyl p-hydroxybenzoate	0.05	Oxyquinoline sulfate	0.1
Boric acid	1.0	Lactic acid	1.0
Glycerin	12.0	Boric acid	1.0
Gum tragacanth	1.20	Glyceoll	0.1
Gum Carob	2.50	Methyl p-hydroxybenzoate	0.05
Bio-Lab Jelly 1951		Propyl p-hydroxybenzoate	0.05
Phenylmercuric borate	0.017	Glycerin	15.0
Oxyquinoline sulfate	0.08	Gum tragacanth	1.2
Boric acid	1.00	Gum carob	2.5
Glycerin	5.75	Lactikol Creme 1951	
Gum tragacanth	4.25	Glycerol monoricinoleate	1.50
Adjusted with lactic acid to pH 4.5		Sodium lauryl sulfate	0.00
D. C. Jelly 1951		Lactic acid	0.10
Chlorothymol	0.015	p-Trisopropylphenoxypoly ethoxyethanol	1.25
Paraformaldehyde	0.20	Glycerin	8.0
Lactic acid U.S.P. to ad just pH to 3.65		Glycerol monostearate	7.50
Propyl p-hydroxybenzoate	0.20	Stearic acid	15.0
Glycerin	16.0	Lactikol Jelly 1951	
Kelcoiloid	0.45	Glycerol monoricinoleate	1.0
Pectinum F	4.0	Sodium lauryl sulfate	0.20
Femogene 1951		Oxyquinoline sulfate	0.05
Lactic acid	1.0	Lactic acid	1.50
Oxyquinoline sulfate	0.05	p-Trisopropylphenoxypoly ethoxyethanol	1.25
Boric acid	3.0	Butyl p-hydroxybenzoate	0.02
Glycerin	5.0	Glycerin	8.0
Tragacanth	2.0	Acacia	1.0
Dipotassium phosphate to ap proximate pH 4.0		Karaya	1.0
Celata 1952		Tragacanth	2.70
Cetyl dimethyl benzyl ammonium chloride	0.1	L. A. J. 1951	
Para tert. amyl phenol	0.2	Cetyl dimethyl benzyl ammonium chloride	0.1
Lactic acid	1.5	Para tert. amyl phenol	0.15
Boric acid	1.0	Lactic acid	1.0
Glyceoll	0.10	Glyceoll	0.10
Methyl p-hydroxybenzoate	0.05	Methyl p-hydroxybenzoate	0.05
Boric acid	1.0	Propyl p-hydroxybenzoate	0.05

	%		%
Glycerin	1.0	Rice Flour—10% sodium chloride	
Tragacanth	0.9	Rice Flour	11.3
Carob gum	2.25	Sodium chloride	8.06
Starch	5.35	(the sodium chloride is 10% of the water)	
LaSavoy Jelly 1951		Rice Flour—20% sodium chloride	
Chlorothymol	0.01	Rice Flour	10.4
Lactic acid	2.4	Sodium chloride	14.9
Oxyquinoline sulfate	0.05	(the sodium chloride is 20% of the water)	
Boric acid	0.25	Rice Flour—30% sodium chloride	
Starch	5.25	Rice Flour	9.7
Gum tragacanth	1.05	Sodium chloride	20.8
Glycerin	6.58	(the sodium chloride is 30% of the water)	
Linton Jelly Oxyquinoline 1951		Servex 1951	
Formula in reference 4 plus		Sodium lauryl sulfate	0.1
Oxyquinoline sulfate	0.1	p-tert. amylhydroxy benzene	0.15
Leocorol 1951		Boric acid	1.0
Aluminum aceto tartrate	3.125	Butyl p-hydroxybenzoate	0.02
Oxyquinoline sulfate	0.5	Alcohol U.S.P.	5.0
Boric acid	2.345	Glycerin	8.0
Glycerin	28.70	Unl Cream 1951	
Gum tragacanth	1.70	Phenylmercuric acetate	0.02
Lorophyn 1951		Oxyquinoline benzoate	0.02
Phenylmercuric acetate	0.05	Cetyl alcohol	1.0
Polyethylene glycol of mono isooctylphenyl ether	0.3	Boric acid	2.0
Methyl p-hydroxybenzoate	0.05	Butyl p-hydroxybenzoate	0.20
Sodium borate U.S.P.	3.0	Glycerin	5.0
Glycerin	8.0	Sorbitan monoleate	5.0
Calcium carrageen sulfate	0.72	Polyoxyalkalene sorbitan monostearate	3.0
Tragacanth	1.8	Stearic acid	20.0
Metakol 1951		Unl-Jel 1951	
Glycerol monoricinoleate	1.0	Trioxymethylene	0.04
Sodium lauryl sulfate	0.2	Diethyl sodium sulfosuccinate	0.50
p-Trisopropylphenoxypoly ethoxyethanol	1.25	Lactic acid	0.09
Boric acid	3.0	Sodium oleate	0.07
Glycerin	7.0	Trihydroxyethylamine	10.5
Gum arabic	0.5	Cellulose gum	11.0
Karaya	1.0	Vagagill Suppository 1951	
Tragacanth	2.0	Phe-Mer Nite a brand of Phenylmercuric nitrate	0.02
Norforms 1951		Oxyquinoline sulfate	3.85
Phenylmercuric acetate	0.02	Acetic acid	3.85
Benzethonium chloride	0.20	Boric acid	19.2
Methyl p-hydroxybenzoate	0.10	Cocoa Butter	73.1
Sorbitan sesquileate	5.0	Warner's Suppository 1951	
Carbowax 1000	80.0	Oxyquinoline benzoate	0.2
20 dendro palmatic acid	14.68	Boric acid	18.9
Ortho Gynol 1951		Salicylic acid	2.8
p-Diisobutylphenoxypoly ethoxyethanol	1.0	Lactic acid	0.2
Ricinoleic acid	0.70	Benzocaine	trace
Oxyquinoline sulfate	0.025	Cocoa butter white wax	82.9
Acetic acid	0.33	Zonitors Suppository 1951	
Boric acid	3.0	Stearic acid	0.25
Propyl p-hydroxybenzoate	0.05	Chloramine-T	2.00
Glycerin	5.0	Sodium stearate	6.00
Acacia	2.0	Potassium stearate	2.50
Tragacanth	3.0		

2 For the following products, the available information was limited to the active ingredients recorded on the package

	%		%
Bio-Lab Creme 1951		Borax	
Phenylmercuric borate		Oxyquinoline sulfate	0.08
Oxyquinoline sulfate		Millex Creme 1951	
Triethanolamine		Glycerol ester of ricinoleic acid	0.50
Stearic acid		Sodium lauryl sulfate	0.60
Glycerin		Oxyquinoline sulfate	0.02
Propylene glycol monostearate		Adjusted with lactic acid to pH 4.5	
Certane Creme 1951		Millex Jelly 1951	
Phenylmercuric acetate	0.02	Glycerol ester of ricinoleic acid	0.50
Sodium sulfo diethyl succinate		Oxyquinoline benzoate	0.10
Chlorothymol in a Stearate base		Adjusted with lactic acid to pH 4.5	
Certane Jelly 1949 1951		Penetrox Creme 1951	
Phenylmercuric acetate	0.02	Glycerol ester of ricinoleic acid	1.50
Boric acid		Sodium lauryl sulfate	0.00
Oxyquinoline sulfate		Oxyquinoline sulfate	0.02
Sodium sulfo diethyl succinate		Adjusted with lactic acid to pH 4.5	
Hyhex Creme 1951		Penetrox Jelly 1951	
Phenylmercuric borate	0.0175	Glycerol ester of ricinoleic acid	1.25
Oxyquinoline sulfate	0.03	Oxyquinoline benzoate	0.10
Triethanolamine		Adjusted with lactic acid to pH 4.5	
Stearic acid		Preceptin 1951	
Glycerin		p-Diisobutylphenoxypoly ethoxyethanol	1.0
Propylene glycol monostearate		Ricinoleic acid	1.17
Hyhex Jel 1951			
Phenylmercuric borate	0.0175		
Lactic acid			
Boric acid			

3 For the following product, the manufacturers gave a quantitative formula which appears complete except for the jelly forming material

	%	
Gyn-Jel (Bombay)		In a water-dispersible self emulsifying synthetic base
Phenylmercuric nitrate	0.02	
Boric acid	2.50	

THE POSTCOITAL TEST AS A METHOD OF EVALUATING A CONTRACEPTIVE JELLY

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and

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In the past 20 years, several birth control studies have been made at Mandel Clinic of Michael Reese Hospital, utilizing jelly alone as a contraceptive measure. In 1932 Stein¹ conducted such a study lasting three years, and during the course of the active clinic no pregnancies occurred among the 146 patients in that particular series. Ten years later, Stein, Nielsen, and one of us (M. R. C.)² reported on another three year study using the jelly alone. This survey included 231 patients who were interviewed in the clinic over a period lasting from 3 to 36 months. A total of 20 pregnancies could be charged solely to the method utilized in this second series. This study showed that the effectiveness of the method using jelly alone to be an 87.1% reduction in fertility. Since 1942 several reports have been made on the efficiency of the nonmechanical means of contraception, including jelly, cream, and suppositories. The authors of these articles reported that the use of these methods resulted in 85 to 100% reduction in fertility.³ From a review of the literature of the past 20 years and from our own experience, it is apparent that nonmechanical means can be effective as contraceptive methods.

In the present survey, we utilized what we consider a more scientific and reliable method for testing the efficacy of a specific contraceptive jelly than has been used in former studies. This method is the postcoital examination made after the use of the contraceptive. We feel that this is an effective means of evaluation since spermicidal action was tested at that period of the menstrual cycle when cervical mucus demonstrated greatest receptivity to spermatozoa. The pregnancies that can be charged against a contraceptive per se, eliminating all other factors, can be better estimated by the positive postcoital tests.

The purpose of this study was threefold: (1) to utilize a heretofore untried objective method of evaluating the effect of an experimental jelly on the longevity of spermatozoa, (2) to determine the effect of this jelly upon cervical mucus, and (3) to evaluate this experimental jelly as a contraceptive.*

In our special birth control clinic, 200 patients were instructed in the method using jelly alone. Of these, 158 patients returned to the clinic for at least one visit over a period of 3

to 18 months. The clientele consisted chiefly of postnatal patients and certain women referred because of medical indications. The group consisted of 95% Negro and 5% white women. Thirty-seven patients had used various birth control measures previously. The chief methods employed were diaphragm and jelly (18 patients) and condom (14 patients). Of these patients 9 and 12 respectively stated that the methods had been successful but had been discontinued for personal reasons.

CLINICAL DATA

The patients were interviewed and examined gynecologically before birth control instruction was given. In addition to past medical, surgical, and obstetric history, an inquiry was made regarding previous contraceptive methods and sex habits. A calendar card was issued to each patient with instructions to mark the dates of menses and of coitus. A symbol was to be placed over the date of intercourse, indicating the date on which the clinic contraceptive was used. If no contraceptive was used, the date was to be circled. Each patient was individually instructed in the proper technique as follows: A 5 cc. applicator was to be filled completely with the jelly, inserted into the vagina as high as possible, withdrawn about 1 inch., and the plunger pushed in all the way so as to place the jelly in the upper vagina, close to the cervix. Each patient was cautioned to insert the jelly while lying in a horizontal position, 5 to 10 minutes prior to each coitus. An optional douche was permitted after a minimum of six hours following coitus. Patients were seen within a week after instruction. Whenever possible, the examination was made a few hours after coitus. Examination at this time and at subsequent one to three month intervals included pelvic examination, with particular attention to the study of vaginal and cervical contents. A vaginal speculum was inserted without lubrication, exposing the cervix and the posterior fornix. A small quantity of the vaginal secretion from the posterior fornix was diluted with saline and the smear of this material examined for spermatozoa, leukocytes, trichomonads, and monilia. The cervical mucus at the external os was removed with tissue forceps. After the cervical mucus was removed, a curved glass cannula was inserted into the cervix for aspiration of the endocervical contents. Occasionally, intra uterine samples were aspirated. The cervical mucus was studied macroscopically as to the amount (1 to 4+), viscosity (thin, moderate, or thick), fibrosity (*Spinnbarkeit*), and flow elasticity. The same specimens were examined microscopically for spermatozoa and leukocytes.

Spinnbarkeit,⁴ which is the capacity of the cervical mucus to be drawn into a thread, shows cyclic variations during the menstrual cycle. At the estimated ovulation time, the cervical mucus becomes thin, profuse, glairy, and will show the greatest degree of *Spinnbarkeit* (usually 10 to 20 cm in length). At this phase of maximum *Spinnbarkeit*, the longevity of spermatozoa is optimal. It is at this time that a contraceptive must be most effective. Therefore, we attempted to test the efficacy of Experimental Jelly 'P' at the estimated ovulation time, utilizing *Spinnbarkeit* and the menstrual calendar as the criteria of ovulation.

RESULTS

A total of 289 postcoital tests was performed on the 158 patients. These tests were done 2 to 72 hours postcoitus. Of the 289 postcoital tests, 173 (59.8%) revealed no sperm, 110 (38.1%) examinations showed nonmotile sperm, and motile sperm were found in only 6 (2.1%) examinations (table 1). These positive findings occurred in 5 women, twice in the same patient. Three women stated that they had not followed the exact instructions regarding the technique.

The mucus obtained at the external os after the use of Experimental Jelly 'P' was almost invariably thick and plastic and showed a *Spinnbarkeit* of 1 cm or less. These physical characteristics of cervical mucus are inimical to sperm motility. However, when this thickened mucus was removed with tissue forceps and the endocervix aspirated, the endocervical mucus was found to be consistently characteristic of the phase of the cycle at which it was obtained. In other words, if the jelly itself produced mucus coagulation, this effect was in the zone of contact and did not penetrate to the endocervix.

From the Department of Obstetrics and Gynecology, Michael Reese Hospital.

1 Dickinson R. L. and Bryant L. S. Control of Conception. An Illustrated Medical Manual. Baltimore: Williams & Wilkins, 1931.

2a Stein I. F. and Cohen, M. R. Jelly Contraceptives, 3 Year Investigation. *Am J Obst & Gynec* 41: 850 (May) 1941.

2b Stein I. F., Cohen, M. R. and Nielsen R. Jelly Alone as Contraceptive Method. 3-Year Investigation. *Human Fertil* 7: 33 (April) 1942.

3a Seibels R. E. Effectiveness of Simple Contraceptive Method. *Human Fertil* 9: 43 (June) 1944.

3b Garvin O. D. Jelly Alone Vs. Diaphragm and Jelly. *ibid.* 9: 73 (Sept.) 1944.

3c Foster M. T. Vaginal Suppositories Vs. Diaphragm and Jelly. *ibid.* 11: 123 (Dec.) 1946.

3d Eastman N. J. and Seibels R. E. Efficacy of the Suppository and of Jelly Alone as Contraceptive Agents. *J A M A* 139: 16 (Jan. 1) 1949.

3e Eastman N. J. Further Observations on the Suppository as a Contraceptive. *South M J* 42: 346 (April) 1949.

3f James W. F. B. Study of a Simple Contraceptive Method for Clinic and Private Patients. *West J Surg* 58: 197 (April) 1950.

3g Goldstein L. Z. A Vaginal Jelly Alone as a Contraceptive in Postpartum Patient. *West J Surg* 58: 708 (Dec.) 1950.

3h Finkelstein R., Guttmacher A. and Goldberg R. A Critical Study of the Efficacy of Jelly as a Contraceptive. *Am J Obst. & Gynec* 63: 664 (March) 1952.

3i Hunter G. W., Darner C. B. and Gillam J. S. *Ann New York Acad Sc* 54: 825 (May) 1952.

3j Stromme W. B. and Rothnem M. S. *Ann New York Acad Sc* 54: 831 (May) 1952.

* Experimental Jelly 'P' was supplied by Ortho Research Foundation.

4 Clift, A. F. Observations on Certain Rheological Properties of Human Cervical Secretion. *Proc Roy Soc Med* 39: 1 (Nov.) 1945. Cohen M. R., Stein I. F. and Kaye B. M. *Spinnbarkeit*: A Characteristic of Cervical Mucus, Fertil & Steril 3: 201 (May/June) 1952.

A total of 200 patients, chiefly postnatal, were instructed in the method using jelly alone. Of the total, 158 patients returned for 1 to 12 follow up visits. In this group, 30 pregnancies occurred. However, 23 of this group of 30 women admitted to omission of the method, incorrect or inconstant use, or the use of some other contraceptive technique. Eighty three women were followed for a period extending from 3 to 18 months. Eighteen of these 83 women became pregnant. Of the 18, 3 omitted contraception, 3 admitted to inconstant use of the jelly, 3 failed to follow instructions properly, and 2 switched to another method. Thus, there were 7 pregnancies which might be attributed to failure of the method (table 2).

In computing the pregnancy rate, only those patients who had been followed for at least three months were included. Some patients were seen for the first time shortly before termination of the clinic and others only on their check up visit one week after instruction. Therefore, the pregnancy rate was computed on the basis of 7 pregnancies out of the group of 83 women who were followed at least three months. The gross pregnancy rate of this group before admission to the clinic was high: 103.15 pregnancies per 100 woman years of exposure. The corrected rate of jelly failure was 17.46 pregnancies for 100 woman years of exposure. Therefore, for the method using jelly alone, the reduction in fertility was 83.17%.

Many patients objected to the messiness of the method. Only rarely did they complain of diminished erotic reactions.

COMMENT

The effectiveness of any contraceptive measure depends upon its spermicidal qualities and regularity of use. Through ignorance and the caprice of human nature, any group of patients, private or clinical, will present a certain percentage of failures. Previous clinical studies have shown fairly high percentages of pregnancies with relatively few actually resulting from failure of the method itself. The corrected figures for our clinic compare favorably to those published by Stein,^{2b} and Finkelstein.^{3b} However, the results of our study are not as favorable as those reported by two other groups of investigators who used Preceptin[†] in their clinics.^{31,1}

The effectiveness of accepted spermicides in general use has been tested repeatedly *in vitro*. In this study, the use of an experimental jelly tested *in vivo* has been reported. The effectiveness *in vivo* of the jelly can be evaluated by examining vaginal and cervical secretions for living spermatozoa following coitus. In utilizing the postcoital test, we hoped to determine whether the failures resulted from the actual failure of the method as a spermicide or to the human element of possible omission or misapplication of the method.

TABLE 1—Positive Postcoital Tests Following Use of Experimental Jelly 'P'

Patient No	Day of Cycle	Hours Post Coitus	Mucus		White Blood Cell/High Power Field	Sperm/High Power Field	% Motility	Grade	Comment
			Amount	Viscosity					
16	10	13	C* 2+ E† 2+	Moderate Moderate	100 5-10	Occasional 1-2	0 90	0 3	Jelly inserted while in bathroom; patient walked to bed took douche in a m.
15	17	12	C 2+ E 2+	Moderate Moderate	50 Occasional	0 Occasional	0 75	0 1-2	Patient re-instructed in use of jelly but still had positive test.
23	18	86	C 1+ E 2+	Thick Moderate	12 6	2 100	0 90	0 4	Jelly inserted while in bathroom; pregnancy followed this exposure.
35	21	34	C 2+ E 4+	Thin Thin	25 5-10	2-3 10	0 90	0 3-2	
45	62 Lactation	11	C 1+ E 2+	Moderate Thick	25 20	5 3	50 25	1-3 1	
70	16	12	C 1+ E 2+	Moderate Moderate	Occasional Occasional	0 2	0 50	0 8	Jelly inserted while in bathroom; took douche in a m.

* External os of cervix † Endocervical canal

Side-Effects—The chief complaint against the contraceptive jelly was that of burning during and after its use. A total of 49 persons complained of local burning with the use of the jelly, this included both male and female. Some of these complaints were made by only one partner, in some instances, both partners complained. Twelve women who reported this symptom were found to have monilial vaginitis, when this was

Since the postcoital method is a sampling technique, it is liable to error. There was an incidence of 2.1% positive postcoital tests (motile sperm) in a total of 289 examinations. It is possible that living sperm were present in other cases but were not found by the sampling technique.

SUMMARY

The effectiveness of the method using jelly alone compares favorably with the results published by other investigators who studied similar methods. Experimental Jelly 'P' was employed in a group of 158 clinic patients. An 83.17% reduction in fertility resulted. However, acceptance of the method by the patients was poor, less than one half of the women were reporting to the clinic at the time the study terminated.

Experimental Jelly 'P' showed only a superficial coagulating effect upon cervical mucus, and there was no evidence of penetration into the cervical canal.

What was considered a more scientific and reliable method for testing the efficacy of a spermicidal jelly was tried: the *in vivo* examination of cervical contents following the use of a specific contraceptive. At the conclusion of this study, we were satisfied that the postcoital test is accurate and should be utilized more widely in the evaluation of spermicidal preparations used as contraceptives.

TABLE 2—Causes and Number of Pregnancies

Causes	Number of Pregnancies
Jelly failures	7
Failure to use jelly as directed	3
Inconstant use of jelly	8
Condom failure	2
Omission of all birth control	10
Total	30

treated, the complaint of burning ceased. In 5 patients, monilia-like organisms were found in the absence of any complaints. Some patients reported burning when the jelly was first used, but stated that with continued use the burning sensation disappeared. Because of these side-effects, the formula of Experimental Jelly 'P' has been changed to incorporate a new buffer system.

† Preceptin has a different buffer system than Experimental Jelly 'P'.

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MEDICAL EDUCATION FOUNDATION REPORTS PROGRESS

The recently published second annual report of the American Medical Education Foundation indicates that 16% of the medical profession in the United States contributed more than 3 million dollars to medical education during 1952. The report clearly shows the medical profession's growing acceptance of the Foundation's fledgling program and the determination of the profession to assist the nation's medical schools in their fight to attain financial solvency. Notable interest in the Foundation's program during 1952 was evidenced by a 287% increase in the number of contributors, from 1,876 in 1951 to 7,259 in 1952. Contributions by individuals to the Foundation during 1952 amounted to \$291,000, a 210% increase over 1951, and total contributions amounted to \$906,553.

With the cooperation of the medical schools, the Foundation's report lists, for the first time, the names of 30,808 individual physicians who made unrestricted gifts directly to the medical schools last year. Names are listed alphabetically by state of residence, and the school receiving the contribution can be identified easily by a code number following each physician's name. Direct gifts to medical schools by physicians in support of teaching programs during 1952 totaled approximately \$2,250,000.

According to the report, strong support of the Foundation was found particularly in eight states in which 15% or more of the physicians made contributions. Nebraska led all states, with a total of 27.93% of her physician population contributing to the Foundation. Indiana, South Dakota, Vermont, Wyoming, New Hampshire, Connecticut, and Delaware, in that order, were the other leaders in the group of eight. While these percentages seem impressive at first glance, the over-all picture is still far short of the optimum support needed from members of the medical profession to relieve the financial strain under which our medical schools operate today.

The medical schools are among the nation's greatest bulwarks for freedom, but they are heavily dependent upon physicians for support. Without the individual support of every member of the medical profession, the

schools will be forced to lower the quality of teaching programs, which ultimately will result in poorly trained physicians. Inadequately trained physicians will mean inadequate medical service for the American public.

Every physician in the United States should read the second annual report of the American Medical Education Foundation and make a careful survey of his or her charitable contributions and include the Foundation. A more worth-while cause than that of keeping the nation's medical schools operating at current high standards cannot be found. Recently President Eisenhower said, "Only if our medical schools remain financially solvent can we hope to place medical education on a sound basis, free from the threat of government-sponsored plans or schemes to control it."

The American Medical Education Foundation is a "physician's foundation," organized for the benefit of the medical schools that will supply future members to the profession. It deserves the wholehearted support of every physician in the United States. Individual members of the profession who have worked on committees at personal sacrifice for the Foundation's program during the last two years are to be commended for their successful efforts to help alleviate the financial strain in medical education today. If this group of busy, practicing physicians can take time from their leisure hours to do the arduous committee work connected with the development of the Foundation, all members of the medical profession can and should help by making a gift to the Foundation. Physicians may make a contribution earmarked for the school of their choice or to the general fund. No matter which method is chosen, it will help the Foundation attain its annual goal of 2 million dollars and help insure the continued freedom and solvency of the medical schools.

MISTREATED CHILDREN

From time to time pictures appear in newspapers showing children who have been treated inhumanely by their parents. In a newspaper with a large circulation through much of the United States there recently was published a photograph of a 12-year-old boy with a chain around his neck. He had been chained to a chair by his father because he displeased this parent.

Such public display of children is not uncommon. Obviously it is newsworthy and may, of course, arouse local indignation so that punishment befitting the crime is effected. It does not, however, help the unfortunate victims. If a child is guilty of an offense against society he must expect to receive some punishment. If, on the other hand, he is subjected to mistreatment, especially if it is not his fault, he should not be exposed deliberately to the ridicule, taunts, and even well meant but cutting sympathy that follows his being placed before the spotlight of publicity. A report of the story is one thing, but an accompanying picture by which the child can be

identified even by strangers is another. If he is a normal child his life may well be profoundly affected by such bids for the attention of a news-hungry public.

Anyone who has worked with children in camps, clubs, or schools will know of the sensitive responses often observed in boys and girls. There are few children who do not feel deeply hurt when they believe they have been betrayed by their parents or, for that matter, by their teachers and group leaders. They are especially troubled when this betrayal means they are held up to ridicule. Sometimes the hurt is controlled without harm to anyone, but too often it results in spiritual and even physical rebellion that leads to serious trouble.

The social and psychiatric aspects of this type of commercial exploitation of children can best be discussed by those who are experts in such fields. Physicians in general, however, work closely with children, not just in their practices but in other activities sponsored by clubs, churches, youth organizations, and schools. From time to time they have encountered situations in which they have longed for the opportunity to prevent some children from being ridiculed publicly. They know that it is much easier to prevent deep resentment than to attempt to correct the results of it. They also know, perhaps better than others, the need for careful counseling as boys and girls are passing through their formative and most impressionable years. Perhaps a few words from doctors addressed quietly to responsible persons may prevent at least occasionally the unnecessary public display and exploitation of some boy or girl whose only crime is to have the wrong parents.

MEDICAL HELP FOR INDIA

During the recent convention of the American Medical Association the Board of Trustees endorsed a joint project of CARE and the World Health Organization to provide needed equipment and supplies to India and neighboring countries. The Trustees' action was followed by one by the Woman's Auxiliary, which adopted a resolution that also pointed up the need for such improved medical services. The project offered by CARE and the World Health Organization is based on a recent WHO survey that established that in India alone there are some 80 hospitals, medical schools, nursing schools, and similar institutions, and 210 more in neighboring countries, with a total of some 42,000 beds, which are in urgent need of the most basic supplies, including bed linen, surgical instruments, simple laboratory equipment, and textbooks on materia medica, pathology, latest surgical and treatment techniques, and similar subjects. A hospital for patients with tuberculosis in Ceylon, for instance, was found to be lacking sterilization equipment for instruments and utensils and for the notoriously bad drinking water of the community. Two natives were kept busy boiling water all day to meet the need. A nursing school in India was providing all of its instruction with the aid of a single anatomic atlas, dog-eared with age, its

request was for books, "just one textbook each on public health, nursing techniques, therapeutical methods, etc." The Ramakrishna Hospital in East Rangoon, which treated more than 76,000 patients last year, not counting patients readmitted, has 16 physicians on its staff, only 4 of whom, the residents and interns, are paid. The other 12 serve gratuitously at the hospital and help make up the constant deficit of the institution with the income from their private practice.

The individual physician of India, Burma, and Thailand often is lacking in health tools which the abject poverty of his country prevents him from obtaining. Where large portions of any population are subjected to constant hunger and want, the health standards of a nation are bound to suffer, not merely as the result of general malnutrition, but because of the lowered resistance to all forms of disease, whether epidemic or endemic in nature. Help in such instances is especially appreciated and of almost incalculable value.

USE OF THE METRIC SYSTEM

The scientific publications of the American Medical Association for some years have favored the use of the metric system. The Council on Pharmacy and Chemistry uses only this system for its books, and for *THE JOURNAL*, the metric system is preferred. The advantages of using the metric system are many and have been mentioned in earlier issues of *THE JOURNAL*. These advantages accrue to the medical profession, pharmacy, the drug industry, and to the patient.

The United States Pharmacopeia and the National Formulary, which are official compendiums for the United States, give preference to the metric system. Only in the United States, Canada, and Great Britain is the apothecary system used extensively. And even in the United States it is being used less each year because of the teaching in medical schools and because the drug industry is labeling its newer products with metric weights and measurements. Thus it seems to be only a matter of time before the apothecary system is largely discarded in this country.

This progress should be encouraged for practical reasons, which include those associated with economics and with safety in prescribing. According to a survey made by *Drug Topics*, a journal primarily of interest to pharmacists and the drug industry, more than 68% of physicians and pharmacists desire increased use of the metric system. Unfortunately, some of the pharmacists believed this system was not growing in favor. Others, however, asserted it was being used more extensively and referred particularly to increased use by general practitioners. The survey revealed at least some reason for hoping that the day when the metric system will be exclusively used is closer, but it also indicated a real need for those in favor of this more scientific and exact system to use every means to encourage its general adoption. It may take time, but it will be worth the effort.

ORGANIZATION SECTION

COMMITTEE ON LEGISLATION

At its meeting April 3-4, 1953, the Committee on Legislation took action on 75 legislative measures introduced in the 83rd Congress, recommending either approval or disapproval. All of the recommendations were approved by the Executive Committee of the Board of Trustees on April 26, 1953. Following is a brief résumé of these bills grouped according to subjects, together with the position adopted by the Association in each instance.

MEMBERS OF THE ARMED SERVICES OR THEIR DEPENDENTS

S 33

Introduced by Mr. McCarran of Nevada and referred to the Senate Committee on Armed Services.

Digest of Bill—The bill would authorize hospitalization and medical and dental care for members of the Coast Guard and their dependents in United States Naval hospitals and dispensaries when such care is not available from the United States Public Health Service.

Association Position—The Association actively opposes the bill, because, in its opinion, medical care and hospitalization is now being furnished to dependents of service personnel without clear-cut congressional authority. The Army, Navy, and Air Force are currently furnishing medical care for dependents of service personnel on the basis of an act passed on July 5, 1884, providing, in part, that "medical officers of the Army and contract surgeons shall, wherever practicable, attend the families of the officers and soldiers free of charge."

The wholesale extension of such care as a matter of convenience and without regard to the availability of adequate civilian personnel and facilities is necessitating the induction of increased numbers of physicians into the armed services. In addition, the expansion and new construction of military medical installations to care for such dependents is an unauthorized and unnecessary expenditure of funds.

S 932 (similar bills H R 2724 and H R 3160)

Introduced by Mr. Hunt of Wyoming and Mr. Hendrickson of New Jersey and referred to the Senate Committee on Armed Services.

Digest of Bills—These bills would amend the Officer Personnel Act of 1947 (Public Law 381, 80th Congress) so as to permit the commissioning of veterinarians as first lieutenants rather than as second lieutenants.

Association Position—The Association actively approves these bills. The position of the Association was motivated by a change in the educational standards adopted by schools of veterinary medicine since 1949. From 1935 to 1947 veterinarians were commissioned as first lieutenants right out of school. Because the schools of veterinary medicine required a minimum of only one year of preveterinary college training for admission in 1947, instead of the two required by dental and medical schools, the entrance grade for veterinarians entering the armed services immediately after graduation was set at second lieutenant, by the Officer Personnel Act of 1947.

Since 1949, all schools of veterinary medicine have required two years of preveterinary college training as a minimum. A recent survey reveals that in actuality over half of the students admitted have three and four years of college when admitted.

S 1531

Introduced by Mr. Saltonstall of Massachusetts and referred to the Senate Committee on Armed Services.

Digest of Bill—This bill would reenact the language of Public Law 779, 81st Congress, as amended, with some changes and extend the effective date of that Act until July 1, 1955. The bill would retain the four priority classifications contained in existing law, and would, in addition, make the following provisions:

1 Credit would be given for service between Sept. 16, 1940, and Sept. 2, 1945, in the armed services of any country allied with the United States during World War II.

2 Physicians with 12 or more months of service since June 25, 1950, would be excluded from liability for registration and for further service.

3 Authorization would be granted for the appointment or commissioning of medical officers in grades "commensurate with professional education, experience or ability."

4 The reserve commissions of all physicians taken into the service by operation of the law would be terminated on completion of 24 months of service.

Association Position—The Association concurs in a one year extension of the "Doctor-Draft Law" but recommends a variety of amendments to the bill. For a complete statement in this regard see the testimony presented by the Association to the Armed Services Committee of the House of Representatives on April 24, 1953, relative to an identical bill, H R 4495, 83rd Congress (THE JOURNAL, May 9, 1953, page 166).

H R 2452

Introduced by Mr. Boggs of Louisiana and referred to the House of Representatives Committee on Armed Services.

Digest of Bill—The bill would entitle retired enlisted personnel of the Army, Navy, Marine Corps, and Coast Guard, including members of the Fleet Reserve and Fleet Marine Reserve, to receive dispensary treatment in any Army or Navy hospital. The same personnel would be permitted to have hospital care and subsistence when accommodations are available.

Association Position—The Association actively opposes this bill. This bill would merely enlarge the ever-growing number of persons eligible for federal medical care.

H R 2756

Introduced by Mr. Seely-Brown of Connecticut and referred to the House of Representatives Committee on Armed Services.

Digest of Bill—The bill would authorize hospitalization and medical, surgical, and dental care for members of the Coast Guard and their dependents in hospitals and dispensaries operated by the armed forces at places outside the Continental United States and at other places where hospitals operated by the United States Public Health Service are not available. This care would be available when the Coast Guard is operating in the Treasury Department.

Association Position—The Association actively opposes the bill for the same reasons as indicated under S 33 above. The Association would qualify its opposition to this bill insofar as care for dependents outside of the United States is concerned. It is recognized that care should be provided by the armed forces to dependents overseas and where civilian medical personnel and facilities are unavailable or inadequate.

H R 2955

Introduced by Mr. Judd of Minnesota and referred to the House of Representatives Committee on Armed Services.

Digest of Bill—The bill would amend the "Doctor Draft Law" to allow credit for time spent in the armed services during World War II before as well as subsequent to Navy V-12 training or Army Specialized Training.

Association Position—The Association actively approves the bill in the belief that it would remove many of the inequities created by the definitions of priority 1 and 2 classifications now contained in Public Law 779, 81st Congress, as amended. At the present time physicians with service as enlisted men prior to participation in a Navy V-12 or Army Specialized Training program are not given credit for such service. The bill would change the priority classification of physicians in priorities 1 and 2 with more than 21 months of total service to priority 4.

MEDICAL RESEARCH AND ESTABLISHMENT OF MEDICAL FOUNDATIONS

S 156

Introduced by Mr Langer of North Dakota and referred to the Senate Committee on Labor and Public Welfare

Digest of Bill—The bill would authorize the establishment of a National Epilepsy Institute in the United States Public Health Service. The functions of this institute, under the supervision of the Surgeon General of the United States Public Health Service, would be to conduct, promote, coordinate, and assist in research and experiments and to compile and disseminate information relating to the cause, prevention, methods of diagnosis, and treatment of epilepsy.

Association Position—The Association actively opposes this bill because there are already existing agencies for such a program under the supervision of the Surgeon General of the United States Public Health Service.

S 188 (identical bills. H R 583, H R 2253 and H R 2693)

Introduced by Mr Neely of West Virginia and referred to the Senate Committee on Labor and Public Welfare

Digest of Bills—The bills would authorize the President to mobilize a group of outstanding experts and to coordinate and use their services in an effort to discover means of curing and preventing cancer. An initial appropriation in the amount of \$100,000,000 would be authorized by these bills for this program.

Association Position—The Association actively opposes these bills, because it believes that the system proposed would be ineffective in discovering a cure for cancer. A large part of the funds and research efforts of individuals, private institutions, and government agencies is now being directed to the detection of the causes of and a cure for cancer. It does not appear, therefore, that the creation of a new governmental research agency in this field would expedite the accomplishment of the desired results.

H R 258

Introduced by Mr Elliott of Alabama and referred to the House of Representatives Committee on Interstate and Foreign Commerce

Digest of Bill—The bill would authorize an annual appropriation of \$7,500,000 for research in connection with child life. The funds appropriated would be administered federally or through grants in aid to universities, individuals, or public or nonprofit institutions. Research authorized would include the establishment and maintenance of fellowships and the construction, acquisition, leasing, equipping, and maintaining of facilities and necessary services.

Association Position—The Association actively opposes this bill in the interest of economy and inasmuch as the Children's Bureau already has the authority to do such research work.

H R. 2290

Introduced by Mr Morrison of Louisiana and referred to the House of Representatives Committee on Interstate and Foreign Commerce

Digest of Bill—The bill would amend the Public Health Service Act to authorize the establishment of an institute for research on poliomyelitis in the United States Public Health Service. An appropriation of 5 million dollars would be authorized by the bill for this institute.

Association Position—The Association actively opposes this bill because there are already existing agencies for such a program under the supervision of the Surgeon General of the United States Public Health Service.

VETERANS AND VETERANS ADMINISTRATION

S 370 (identical bills H R 28 and H R 261, similar to H R 2001)

Introduced by Mr Murray of Montana and referred to the Senate Committee on Labor and Public Welfare

Digest of Bills—The bills would authorize the construction of additional hospital facilities by the Administrator of Veterans' Affairs to provide the 16,000 beds for which authoriza-

tion was dropped in the budget estimate for the fiscal year 1950. The bills would also authorize the Administrator of Veterans' Affairs, with the approval of the President, to make changes in the location, size, and type of facilities in the program heretofore approved.

Association Position—In view of the facts contained in the report of the Special Committee on Federal Medical Services submitted in December, 1952, the Association actively opposes these bills.

S 609 (identical bills H R 25 and H R 1573)

Introduced by Mr Sparkman of Alabama and referred to the Senate Committee on Finance

Digest of Bills—The bills would amend Veterans Regulation Numbered 1 (a) as amended, to establish a presumption of service-connection for chronic and tropical diseases developing to a degree of 10% or more within three years after separation from active service, notwithstanding the fact that there is no record of such disease during active service.

Association Position—The Association feels that these bills are too general and do not define the terms "chronic" and "tropical diseases." In addition, the bills represent another effort to further liberalize existing Veterans Administration regulations regarding the presumption of service connection. The continuation of such a policy of liberalization will not only result in a distortion of the theory on which compensation benefits are based but will also result in the extension of hospitalization and medical care benefits to veterans with disabilities that are in actuality not service-connected, regardless of their ability to pay for such care from private sources. The Association therefore actively opposes these bills.

S 762 (identical bill H R 33)

Introduced by Mr Martin of Pennsylvania and referred to the Senate Committee on Finance

Digest of Bills—The bills would amend Veterans Regulation Numbered 1 (a) to establish a rebuttable presumption of service connection for active tuberculosis, psychosis, and multiple sclerosis that develops to a 10% or more degree of disability within three years after separation from active service.

Association Position—The Association actively opposes these bills for the reasons stated under S 609 et al.

H R 35 (identical bill H R 1543)

Introduced by Mrs Rogers of Massachusetts and referred to the House of Representatives Committee on Veterans Affairs

Digest of Bills—The bills would amend Veterans Regulation Numbered 6 (a), as amended, to authorize the Administrator of Veterans' Affairs to supply hospital care and medical treatment to veterans who are citizens of the United States visiting or residing abroad for disabilities incurred in service.

Association Position—The Association supports the principle of providing care for veterans with service-connected disabilities, but opposes these bills as drafted because they are too vague and may possibly authorize the construction of Veterans Administration hospitals overseas.

H R 45

Introduced by Mrs Rogers of Massachusetts and referred to the House of Representatives Committee on Veterans Affairs

Digest of Bill—The bill would establish a rebuttable presumption of a service incurred or aggravated disability in case of malignant tumors that develop to a 10% or more degree of disability within two years after separation from active service.

Association Position—This bill sets up an arbitrary rule that the Association feels is not medically sound. The Association actively opposes the bill for this reason and for those listed under S 609 et al.

H R 46 (similar bills H R 310 and H R 2097)

Introduced by Mrs Rogers of Massachusetts and referred to the House of Representatives Committee on Veterans Affairs

Digest of Bills—The bills would amend Veterans Regulation No 1 (a) to establish a rebuttable presumption of service-connection for wartime veterans developing tuberculosis other

than pulmonary within three years after separation from active service

Association Position—The Association actively opposes these bills for reasons indicated for H R 45 above and S 609 et al

H R 54

Introduced by Mrs Rogers of Massachusetts and referred to the House of Representatives Committee on Veterans Affairs

Digest of Bill—The bill would authorize the appointment of doctors of chiropractic in the Department of Medicine and Surgery of the Veterans Administration To be appointed such a person must hold a degree of doctor of chiropractic from a school or college approved by the Administrator, be licensed to practice in one of the states or Territories or the District of Columbia, and have practiced chiropractic for at least two years

Association Position—The Association actively opposes this bill

H R 338

Introduced by Mrs Rogers of Massachusetts and referred to the House of Representatives Committee on Veterans Affairs

Digest of Bill—The bill would amend Veterans Regulation Numbered 7 (a) to authorize the Administrator of Veterans' Affairs, within the limits of existing facilities over which the Veterans Administration has direct and exclusive jurisdiction, to furnish outpatient medical, dental, and surgical treatment for non service-connected disabilities to any veteran eligible for hospitalization if he is in receipt of or entitled to compensation for a 100% disability or pension for permanent and total disability Such outpatient care is contingent upon the fact that such care is medically feasible and less costly than hospitalization by the Veterans Administration

Association Position—The Association actively opposes this bill, in view of the facts contained in the report of the Special Committee on Federal Medical Services submitted in December, 1952 The provision of outpatient care for individuals with non service-connected disabilities would greatly extend the responsibility of the government for this type of disability

H R 1414

Introduced by Mrs Rogers of Massachusetts and referred to the House of Representatives Committee on Veterans' Affairs

Digest of Bill—The bill would authorize the Administrator of Veterans' Affairs and the secretaries of the Army, Navy and Air Force, with the approval of the President and the Secretary of Defense, to transfer hospitals, facilities, equipment, etc., between the Veterans Administration and the Armed Services

Association Position—The Association approves this bill It is felt that in providing federal medical and hospital services there should be an allocation of beds and hospitals in an effort to attain the greatest economy It is not now possible for the Department of Defense to take over Veterans Administration hospitals without a transfer of funds

H R 2573

Introduced by Mrs Rogers of Massachusetts and referred to the House of Representatives Committee on Veterans' Affairs

Digest of Bill—The bill would amend Public Law 62, 76th Congress, as amended, to provide that veterans of the Spanish-American War, including the Boxer Rebellion and the Philippine Insurrection, who are in need of outpatient treatment, shall for the purposes of such treatment or for emergency hospital care, be deemed to have a service-connected disease or disability

Association Position—The Association actively opposes this bill because it is not medically sound and would distort completely the theory on which compensation and service connected medical care and hospitalization benefits are based It is believed that if such a precedent were established, eventually benefits of this type would be extended to other veterans, which would make a large part of the population eligible for such medical care

H R 2980

Introduced by Mrs Rogers of Massachusetts and referred to the House of Representatives Committee on Veterans Affairs.

Digest of Bill—The bill would authorize and direct the Chief Medical Director of the Veterans Administration to make available to all veterans entitled to outpatient eye care the services of qualified optometrists

Association Position—The Association opposes the bill because (1) it would compel the Chief Medical Director of the Veterans Administration to make available a particular type of service even though in his professional judgment it was not suitable in a particular case, (2) there can be no reliable evidence presented that veterans now are denied any eye care that the enactment of this bill would make available, (3) the training that an optometrist receives does not qualify him to give the veteran suffering from a visual disturbance 'proper eye care, and the optometrist is not authorized by law to use medication or to employ surgery, and (4) the services of optometrists are now made available to veterans on request in certain cases in which an examination by a qualified ophthalmologist fails to disclose the existence of a cause of visual abnormality unrelated to lens power

H R 3070

Introduced by Mr Frelinghuysen of New Jersey and referred to the House of Representatives Committee on Veterans' Affairs

Digest of Bill—The bill would amend Veterans Regulation No 1 (a) to establish a presumption of service-connection for war-time veterans in whom amyotrophic lateral sclerosis develops to a degree of 10% or more within two years after separation from active service

Association Position—The Association actively opposes this bill for the reasons outlined under S 609 et al

FEDERAL AID TO EDUCATION

S 461

Introduced by Mr Humphrey of Minnesota and referred to the Senate Committee on Labor and Public Welfare

Digest of Bill—The bill would amend the Public Health Service Act to provide grants-in aid and federal scholarships for postgraduate education in the field of public health The bill would authorize annual appropriations to enable the Surgeon General of the United States Public Health Service to meet the basic operating costs of graduate instruction in schools of public health, for grants for the construction and equipping of new schools of public health, and for the expansion of existing facilities In addition, sums would be authorized annually for five years for scholarships in public health training (including hospital administration)

Association Position—The Association actively opposes this bill for the same reasons as for S 337, 82nd Congress (federal aid to medical education) It is the belief of the Association that under such a system an objectionable degree of federal control would be inevitable The bill would create an opportunity for the exercise of political pressure and intervention and would jeopardize the academic freedom of medical schools

H R 250

Introduced by Mr Elliott of Alabama and referred to the House of Representatives Committee on Education and Labor

Digest of Bill—The bill would authorize federal grants to states on a 50 50 matching basis to help finance health and safety instruction and physical education for children of school age States must have approved plans that provide (1) for a program to improve health and safety instruction and physical education in local schools, (2) that the state treasurer be the custodian of the funds, (3) for an equitable apportionment of funds for different racial groups, (4) for administration and supervision of plans by the state administrative agency, and (5) for periodic reports

Association Position—The Association actively opposes this bill because it (1) deals with a state and local problem and (2) provides for an unnecessary expenditure of funds.

H R 2718

Introduced by Mr Heller of New York and referred to the House of Representatives Committee on Interstate and Foreign Commerce

Digest of Bill—The bill would authorize the creation of a United States Medical and Dental Academy for the purpose of training physicians and dentists for the Armed Services and the United States Public Health Service

Association Position—The Association actively opposes this bill since faculties would be difficult to obtain, hospital service would be hard to execute in connection with the school, and the manner of selection of the entrants would probably be political

H R 2838

Introduced by Mr Elliott of Alabama and referred to the House of Representatives Committee on Education and Labor

Digest of Bill—The bill would authorize the appropriation of 32 million dollars for the fiscal year 1954 to establish a program of federal aid to students in higher education. The bill provides for a gradual increase in authorized appropriation until 1957, when the cost would be 128 million dollars. States would administer the program under federal regulation promulgated by the Office of Education of the Federal Security Administration. Four year college scholarships would be allowed, with loans to students not to exceed \$800 per year. Medical education would be included, although it is not specifically referred to in the bill.

Association Position—The Association actively opposes this bill for the reasons outlined under S 461

TAX RELIEF**H R 474**

Introduced by Mr Keating of New York and referred to the House of Representatives Committee on Ways and Means

Digest of Bill—This bill would, in part, amend section 23 (x) of the Internal Revenue Code (relating to deductions from gross income) and provide for a graduated scale of medical care deductions based on adjusted gross income. It would include in the term 'medical care' amounts not compensated for by insurance or otherwise that are paid for the diagnosis, cure, mitigation, treatment or prevention of disease or for the purpose of affecting any structure or function of the body (including amounts paid for accident and health insurance).

Association Position—The Association actively approves this bill in principle since it would afford individual relief in cases of extremely high medical expenses and would also be an incentive to buy voluntary health insurance.

H R 482

Introduced by Mr Keating of New York and referred to the House of Representatives Committee on Ways and Means

Digest of Bill—This bill would amend part III of chapter I of the Internal Revenue Code as amended and insert a new section 36 to provide for the deduction of sums paid as premiums or subscription charges for health or medical insurance or plans from federal income tax, irrespective of whether such plans or programs are operated, financed, or administered by or through either public or private organizations or individuals.

Association Position—The Association approves the bill in principle.

H R 2243

Introduced by Mr Dague of Pennsylvania and referred to the House of Representatives Committee on Ways and Means

Digest of Bill—The bill would authorize the deduction of medical and dental expenses from gross income for income tax purposes. The term 'medical expenses' is defined by the bill to include amounts paid for the diagnosis, cure, mitigation, treatment or prevention of disease or for the purpose of affecting any structure or function of the body (including amounts paid for accident or health insurance). Such medical expenses incurred by the taxpayer, his spouse or his dependents would be deductible.

Association Position—The Association actively approves the bill in principle since it would afford individual relief in cases of extremely high medical expenses and would also be an incentive to buy voluntary health insurance. Under present law medical expenses are deductible only after the adjusted gross income has been determined and such expenses exceed a minimum amount (5% of adjusted gross income) and are not in excess of a fixed maximum (\$2,500 on an individual return or \$5,000 for a husband and wife jointly).

SOCIAL SECURITY AND DISABILITY INSURANCE**H R 383 (similar bills H R 2070 and H R 2150)**

Introduced by Mr Byrd of West Virginia and referred to the House of Representatives Committee on Ways and Means

Digest of Bills—The bills would amend Title II of the Social Security Act to provide cash disability insurance benefits for totally disabled individuals. These monthly benefits would be payable after a six month waiting period to those persons 'unable to engage in any substantially gainful activity by reason of any medically demonstrable physical or mental impairment, or blindness'. Medical examinations to determine eligibility for disability benefits would be performed by federal employees or private physicians in accordance with regulations promulgated by the administrator. The cost of such examinations and necessary travel expenses would be paid from the Social Security Trust Fund. Periodic reexaminations would be similarly conducted and financed. Failure to submit to such examination or to accept rehabilitative services would be sufficient grounds for suspension of benefits.

Association Position—The Association actively opposes the bills thus reiterating the past opposition of the Association to amendments to the Social Security Act providing for permanent and total disability and cash sickness benefits and a broad rehabilitative program for Social Security beneficiaries. It is the belief of the Association that the initiation of a federal disability benefit program would represent a major step toward the wholesale nationalization of medical care and the socialization of the practice of medicine. The provisions in these bills regarding disability certification would establish an inferior type of physician patient relationship, which, along with the entire program, would undoubtedly result in a deterioration of medical care.

H R 1376

Introduced by Mr Bryson of South Carolina and referred to the House of Representatives Committee on Ways and Means

Digest of Bill—The bill would amend Title II of the Social Security Act by reducing the age requirement for Old Age and Survivors Insurance benefits from 65 to 62 and, in addition, would authorize the payment of such benefits to an individual when 'his permanent physical or mental condition became such that he was unable to engage in any regular employment'. The bill does not spell out the criteria to be applied in making such determinations or how the provisions shall be administered.

Association Position—The Association actively opposes the bill for the reasons specified in connection with H R 383.

H R 2000

Introduced by Mr Rhodes of Pennsylvania and referred to the House of Representatives Committee on Ways and Means

Digest of Bill—The bill would amend Title II of the Social Security Act to provide cash disability insurance benefits for permanently and totally disabled individuals. These monthly benefits would be payable after a six month waiting period to persons unable "to engage in any substantially gainful activity by reason of any medically determinable physical or mental impairment which can be expected to be permanent, or blindness". The bill does not spell out the criteria to be applied in making such determination or how the provisions shall be administered.

Association Position—The Association actively opposes the bill for the reasons outlined in connection with H R 383

H R 2446 (identical bills H R 2447 and H R 3105)

Introduced by Mr Angell of Oregon and referred to the House of Representatives Committee on Ways and Means

Digest of Bills—The bills would repeal Titles I and II of the present Social Security Act and would create a new Social Security System on a pay as you go basis. The following persons would be eligible for a monthly annuity of an undisclosed amount (a) citizens 60 years of age or over, (b) citizens who are "disabled" for a period longer than six months, and (c) widows who are citizens and have the care of one or more children under 18 years of age. The annuity to be paid would, by the terms of the bills, necessarily be spent in the United States, its territories, or possessions within 30 days after receipt. The annuitant could not engage in any occupation for which a wage, profit, or other compensation is received and still be paid a monthly benefit. The program would be financed by a fixed 2% tax to be collected monthly on the gross income of all persons or companies derived from any source. In connection with personal income there would be an exemption of \$250 per month. Certain fraternal, religious, and other eleemosynary organizations would be excluded from the provisions of the act. The taxes thus collected would be placed in a "Business Employment and Security Insurance Account" from which the monthly benefits would be paid.

Association Position—The Association actively opposes these bills because they would authorize permanent and total disability benefits, to which the Association has repeatedly voiced its opposition. The Association also feels that such legislation should be held in abeyance pending a report from the commission that has been proposed to study governmental functions and fiscal resources (see S 1514). The Bureau of Medical Economic Research of the American Medical Association is in the process of preparing a report on the general subject of pay-as-you go Social Security plans.

COMPULSORY HEALTH "INSURANCE" AND FEDERAL SUBSIDIZATION OF PRIVATE PLANS

H R 1590

Introduced by Mr Miller of California and referred to the House of Representatives Committee on Post Office and Civil Service

Digest of Bill—The bill would authorize, on the request of the employee and under regulations to be promulgated by the Civil Service Commission, the withholding of premium payments for life, health, accident, medical, and hospitalization insurance from the compensation due to federal employees.

Association Position—The Association opposes the bill pending further information from the Council on Medical Service and the Bureau of Medical Economic Research.

H R 1817

Introduced by Mr Dingell of Michigan and referred to the House of Representatives Committee on Interstate and Foreign Commerce

Digest of Bill—This is an omnibus bill (163 pages) that would provide for a variety of legislative changes in the role of the federal government in medicine. Briefly, the bill would provide (a) federal aid to medical, dental, etc., education, (b) federal subsidization of practical nurse training, (c) increased federal subsidization of medical research, (d) authorize an extensive survey of hospital facilities and extend federal assistance in hospital construction, (e) federal assistance in supplying physicians and medical facilities to rural areas, (f) federal aid to local public health units, (g) federal research in child and maternal health, and (h) establishment of a federal national health "insurance" program.

Association Position—The Association actively opposes the bill.

AID TO THE HANDICAPPED

H R 402

Introduced by Mr Celler of New York and referred to the House of Representatives Committee on Education and Labor

Digest of Bill—The bill would amend various existing laws dealing with federal aid to the blind and other seriously disabled persons. The purpose of the act is to authorize a comprehensive grant-in-aid program to assist the states in furnishing a variety of services to the blind and others seriously disabled.

Association Position—The Association actively opposes the bill pending the report of the Commission on Federal State Relationships.

H R 2096 (identical bills H R 2147, H R 2149, H R 2300, H R 2342, H R 2346, H R 2519, H R 3177, H R 3188, H R 3291)

Introduced by Mr Hagen of Minnesota and referred to the House of Representatives Committee on Education and Labor

Digest of Bills—The bills propose to establish an independent federal agency to be known as the Federal Agency for Handicapped, to provide various types of rehabilitative services to persons physically or mentally handicapped. The agency would absorb the functions of the Office of Vocational Rehabilitation, the Division of the Physically Handicapped in the Bureau of Labor Statistics, the functions of the Library of Congress in furnishing aid for the blind, and the functions of the Federal Security Agency with respect to the Vocational Rehabilitation Act and state grants for aid to the blind. The new agency also would coordinate all other rehabilitative measures for the benefit of handicapped persons, administered by other agencies of the government.

Association Position—The Association opposes these bills pending the report of the Commission on Federal State Relationships.

MISCELLANEOUS

S 601 (identical bills S 835 and H R 2769)

Introduced by Mr Humphrey of Minnesota to the Senate Committee on Labor and Public Welfare

Digest of Bills—The bills would amend section 704 of the Federal Food, Drug, and Cosmetic Act by restoring authority in the Food and Drug Administration to inspect factories with out first making a request and obtaining permission. Written advance notice would suffice.

Association Position—The Association approves the principle of the bills, provided that proper safeguards are included to protect the physician-pharmacist-patient relationship. It believes that the inspection privilege should not be extended to confidential business and professional records that have no specific bearing on the enforcement of the Food, Drug, and Cosmetic Act.

S 967 (identical bill H R 3171)

Introduced by Mr Taft of Ohio and Mr Hill of Alabama to the Senate Committee on Labor and Public Welfare

Digest of Bills—The bills would amend Title VI of the Public Health Service Act as amended, to extend to June 30, 1957, the annual appropriation of 75 million dollars to assist the states in the construction of public and other nonprofit hospitals.

Association Position—The Association approves these bills.

S 994

Introduced by Mr Saltonstall of Massachusetts and six others to the Senate Committee on Labor and Public Welfare

Digest of Bill—The purpose of the bill is to develop and extend basic state and local public health organizations through federal subsidization. The bill would authorize state grants to develop and maintain public health services, including the establishment of new local public health units and the training of personnel for state and local public health work and to

provide measures for the prevention, treatment, and control of disease. The section would also authorize the Surgeon General of the United States Public Health Service to provide demonstrations and to train personnel for state and local public health work.

Association Position—The Association opposes the bill, pending the report of the Commission on Federal-State Relationships.

S 1514

Introduced by Mr Taft of Ohio and referred to the Senate Committee on Government Operations.

Digest of Bill—The bill would establish a Commission on Governmental Functions and Fiscal Resources. Of the 25 commission members, 15 would be appointed by the President, 5 by the President of the Senate, 3 from the majority party and 2 from the minority party, and 5 by the Speaker of the House of Representatives, 3 from the majority and 2 from the minority. The commission would study and investigate all the activities in which federal aid is extended to state and local governments. The objective would be to determine whether there is justification for such federal aid, whether there are other fields in which the federal government should participate, whether federal control should be limited, and whether federal aid should be limited in cases of need, and the ability of the federal government and the states to finance such activities. The commission would submit its final report, including legislative recommendations, not later than March 1, 1954, and could make interim reports.

Association Position—The Association actively approves S 1514, as well as an identical bill introduced in the House of Representatives, H R 4406, 83rd Congress. It is the belief of the Association that such a survey is imperative to determine whether there is justification for federal aid in the various fields in which such assistance has been extended during the past few years, whether such activities should be limited and if so to what extent, and finally, to permit an over all appraisal of the ability of the federal government to finance activities of this nature.

H R 116

Introduced by Mrs Church of Illinois and referred to the House of Representatives Committee on the Judiciary.

Digest of Bill—The bill would amend Title 18, U S C, Chapter 39, so as to prohibit the interstate transportation of fireworks into any state in which the sale of such fireworks is prohibited, unless they are to be used for public displays or other purposes specifically authorized by the laws of such state.

Association Position—Because of the serious injuries that result from the indiscriminate use of fireworks, the Association approves the principle of the bill and has submitted a statement to the Committee on the Judiciary of the House of Representatives in this regard.

H R. 633 (Identical bill H R 2862)

Introduced by Mr Teague of Texas and referred to the House of Representatives Committee on Veterans Affairs.

Digest of Bills—The bills would establish a federal Board of Hospitalization to be composed of the Attorney General of the United States, the secretaries of Defense and the Interior, the administrators of Veterans Affairs, the Federal Security Agency, and the General Services Administration, and the Director of the Bureau of the Budget. The Administrator of Veterans' Affairs would act as chairman of the board.

The Board would attempt to coordinate the construction and utilization of hospital facilities by the federal government to prevent overlapping and duplication of services and overbuilding of facilities.

Association Position—The Association approves the principle of the establishment of a federal Board of Hospitalization but disapproves the present bills. The Association recommends that any board that is established be composed of the Secretary of the Interior, the Director of the Budget, and a representative of the Department of Defense, and that the

number of civilian members be at least equal to the number of government representatives. Government officials in charge of medical programs should serve in an advisory capacity only.

H R 2449

Introduced by Mr Bailey of West Virginia and referred to the House of Representatives Committee on Interstate and Foreign Commerce.

Digest of Bill—The bill would establish an independent agency to be known as the Bureau of Clinics for the treatment of chronic alcoholics and narcotic addicts. The bureau would also assist states and private agencies to establish farms and to train and educate personnel in approved methods of treatment, cure, and rehabilitation of drug addicts and alcoholics. The facilities of the United States Employment Service would be used in finding suitable employment for those rehabilitated. The powers, duties, responsibilities, and functions vested in the Surgeon General of the United States Public Health Service would be transferred to the new Bureau.

Association Position—The Association opposes the bill because it feels that if such a program is to be developed, it should be under the direction of the United States Public Health Service. Also, the Association does not look with favor at this time on the establishment of new bureaus in the government.

FEDERAL MEDICAL LEGISLATION

Vocational Rehabilitation for Mental Patients

Senator Humphrey (D, Minn.), has introduced S 2145, which would amend the Vocational Rehabilitation Act by redefining 'vocational rehabilitation' and 'rehabilitation services' so as to include mental conditions, and also would extend the definition of hospital as used in the Hospital Construction Act to include hospitals furnishing primarily domiciliary care. The bill would authorize the use of federal grants to states for corrective surgery or treatment of mental as well as other disabling conditions. The measure was referred to the Labor and Public Welfare Committee.

Post High School Scholarship Loans

Senator Langer (R, N D), introduced a bill to authorize appropriation of 50 million dollars to be administered by the U S Commissioner of Education as a revolving fund for direct loans to students for vocational, technical, academic, or professional education beyond high school. Loans could be used for tuition, books, supplies, board, lodging, or other necessary educational expenses, but could not exceed a total of \$1,000 to an individual person. Students would be required to give a note bearing interest at 1% and maturing in 15 years. Schools would be required to furnish a certificate that the applicant is qualified for the proposed course of study. The bill was referred to the Labor and Public Welfare Committee.

Reorganization of the Department of Defense

H R 295 and a bill H R 5845, both introduced by Condon (D, Calif.), would have disapproved or modified the Presidential Reorganization Plan No 6 because of two provisions designed to strengthen the authority of the chairman of the joint chiefs of staff. The resolution lost by 2 to 1 on the floor and the presidential plan became effective June 30. Medical interest is centered on an assistant secretary who will be responsible for health and medical matters. The bills were referred to the Government Operations Committee.

Silicosis Investigation

Congressman Metcalf (D, Mont.), has introduced a resolution H R 286 which would authorize the House Committee on Education and Labor to investigate prevention and control of occupational diseases in the mining industry. The resolution was referred to the Rules Committee.

The summary of federal legislation was prepared by the Washington Office of the American Medical Association and the summary of state legislation by the Bureau of Legal Medicine and Legislation.

Bricker Resolution

Chairman Reed (R, Ill.), of the Judiciary Committee has introduced H J R 280 which is identical with S J R 1, as amended and reported by the Senate Committee on the Judiciary. The new language was suggested by the American Bar Association and substituted for the original language of the Bricker Resolution. The measure was referred to the Judiciary Committee.

STATE MEDICAL LEGISLATION**Alabama**

Bills Introduced.—S 232 proposes to authorize and regulate the fluoridation of water supplies and to exempt municipalities from liability for losses or injuries resulting from the addition of fluoride to the water supply when done in conformity with this proposal.

California

Bills Enacted.—S J R. 33 has become ch. 140 of the laws of 1953. It memorializes the Congress of the United States to increase the staff of federal narcotic enforcement agents and the number of border inspections and recommends that the United States confer authority upon state and local narcotic enforcement officers in border cities and counties to conduct searches and make inspections at border areas. S J R. 34 has become res. ch. 141 of the laws of 1953. It memorializes the Congress of the United States to amend the narcotic drugs import and export act so as to increase the penalties of second and subsequent narcotic offenders. S R. 112 was adopted June 10, 1953. It provides for the creation of an interim commission on the licensing of business and professions and directs such commission to ascertain study and analyze all facts relating to the licensing of business and professions in California. S 1770 has become ch. 1098 of the laws of 1953. It prohibits the operation, establishment, and conduct of a clinic unless a license has first been obtained from the state department of public health. A clinic is defined as a place, establishment or institution which operates under the name or title of clinic, dispensary, health center, medical center or any other word or phrase of like or similar import either independently or in connection with any other purpose for the purposes of furnishing at the place establishment or institution advice, diagnosis, treatment, appliances or apparatus to persons not residing or confined in the place establishment or institution who are afflicted with bodily or mental disease or injury.

Connecticut

Bills Enacted.—H J R. 87 was adopted May 22, 1953. It directs the legislative council to make a study of the care and treatment of habitual alcoholics afflicted with tuberculosis and to report back to the 1955 legislature. S 897 has become public act No. 389, of the acts of 1953. It provides for the licensing, inspection and regulation of certain institutions among which are medical facilities operated by the commission on the care and treatment of the chronically ill aged and infirm.

Delaware

Bills Enacted.—H 307 was approved June 18, 1953. It provides an appropriation to the state board of health to be used for the purpose of carrying out of a state-wide chest x-ray survey. H 356 was approved June 22, 1953. It authorizes the medical council to issue temporary emergency certificates, said temporary emergency certificates to be limited to 12 months duration renewable at the discretion of the issuing authority to such physicians licensed in a state of the United States other than Delaware as shall be found qualified to practice as such in this state during a serious public emergency. The holder of such temporary certificates shall be privileged during the terms specified therein to practice his profession within the state subject to laws generally applicable to the practice of the profession and to regulations and restrictions imposed by the medical council.

Florida

Bills Enacted.—H 536 was approved June 12, 1953. It amends the law relating to osteopathy by increasing the educational requirements of applicants and by adding a list of subjects in which applicants must be examined. H 1109 became law without approval June 15, 1953. It provides regulations relating to agreements for the maintenance of personal care for a period of one or more years or for life or for a fixed fee. The term personal care is defined as including the furnishing of medicine and medical attention. H 1367 was approved June 12, 1953. It fixes the salary of county medical examiners and assistant county medical examiners and authorizes the employment by the county medical examiner of pathologists, toxicologists, chemists and other specialists and technicians when necessary. H 1754 became law without approval June 15, 1953. It provides for the creation of liens in favor of hospitals maintained in counties having a population of not less than 60,000 people. The lien would be in the amount of the value of care rendered to an injured person and would be upon any claim which such injured person might have against another for damages causing the injuries necessitating the hospital care. H 1755 was approved June 12, 1953. It provides a lien in favor of hospitals operated in Volusia County. The lien would be in the amount of the value of hospital care rendered to a person and would be upon any claim which such person might have against another for damages for the injuries making the rendition of hospital care necessary. H. 1856,

became law without approval June 15, 1953. It creates a Halifax Osteopathic Hospital District with authority to raise funds for the establishment and creation of an osteopathic hospital. S 14 became law without approval June 15, 1953. It amends the narcotic act by adding to the list of narcotic drugs any drugs to which the narcotic laws of the United States apply and any drugs which have been determined by the state board of health as having addiction forming or addiction sustaining qualities similar to cocaine, opium, isonipecaine and cannabis. The new law also adds penalties for violations of the act in connection with minors and provides that for a third or subsequent offense the offender may be punished by imprisonment up to 20 years and may not receive a suspended sentence or probation. S 597 became law without approval June 15, 1953. It revises and reenacts the Florida Pharmacy Act. S 783 was approved June 11, 1953. It provides for the creation of a Florida rehabilitation center for alcoholics the duty of which shall be to formulate and effect a plan for the prevention, care, treatment and rehabilitation of alcoholics. S 916 became law without approval June 15, 1953. It authorizes boards of county commissioners and boards of public instruction in certain counties in the state to provide for life, health, accident, hospitalization, or annuity insurance for employees and their families upon a group insurance plan.

Hawaii

Bills Enacted.—H 325 was approved June 16, 1953. It provides that no person shall at any time have or possess a hypodermic syringe or needle or any instrument or implement adapted to the use of habit forming drugs by injection which is possessed for his personal use in administering habit forming drugs unless such possession be authorized by the certificate of a physician and issued within a period of one year prior to such possession. S 567 was approved June 16, 1953. It makes it the duty of every physician and surgeon attending or treating a case of knife wound, bullet wound, gunshot wound, powder burn or any injury that would seriously maim, produce death or has rendered the injured person unconscious caused by the use of violence or sustained in a suspicious or unusual manner to report such case to the chief of police. When such case is treated in a hospital or clinic the superintendent shall also report it.

Illinois

Bills Enacted.—H 698 was approved June 16, 1953. It requires all drug addicts to register with the department of registration and education and to obtain a card which he shall carry with him at all times. The law however does not apply to persons who repeatedly use narcotic drugs when the same are prescribed administered or dispensed by a licensed physician or licensed dentist or are administered or dispensed by a nurse or intern under the direction or supervision of such physician or dentist. H 823 was approved June 16, 1953. It creates a Krebiozen Investigating Commission to make a thorough investigation for the purpose of ascertaining the facts of the controversy that has arisen at the University of Illinois concerning research on krebiozen and to report back to the 1955 legislature.

Massachusetts

Bills Introduced.—S 756 proposes the creation of a special committee to make a study of the workmen's compensation law.

Michigan

Bills Enacted.—H 342, has become public act no. 95 of the acts of 1953. This was erroneously designated H 1342 in THE JOURNAL (152:826 [June 27] 1953). It provides that no autopsies, postmortems, and dissections shall be performed upon the body of a deceased person except by a licensed physician who has been granted written consent therefor by whichever one of the following assumes custody of the body for the purpose of burial: father, mother, widow, widower, guardian next-of-kin or person charged by law with the responsibility of burial.

Oklahoma

Bills Enacted.—H J R. 530 was approved May 16, 1953. It provides for the appointment of a joint committee for the purpose of studying the problem raised by the present institutional care and housing of the aged and senile both within and without the mental institutions of Oklahoma. H 1099 was approved May 25, 1953. It amends the law relating to the practice of chiropractic by providing eight new grounds for revocation or suspension of a license. S 60 was approved June 8, 1953. It authorizes the state commissioner of health to designate by list or general definition those diseases or illnesses which should be reported and to request all physicians of the state to cooperate in the reporting of such diseases. S 153 was approved June 8, 1953. It authorizes the state board of health to approve the use of antiseptic other than nitrate of silver, for use in the eyes of new born children and to prescribe the manner of their use. S 158 was approved June 12, 1953. It provides an appropriation for the University of Oklahoma School of Medicine for the purpose of conducting research on heart disease and cancer control. S 246, was approved May 18, 1953. It provides for the licensing of physical therapists by the state board of medical examiners and defines physical therapy as any professional service requiring special education, knowledge or skill in the treatment of any bodily conditions of any person by the use of physical, chemical and other properties of heat, light, water, electricity, massage and therapeutic exercise which includes posture and rehabilitation procedures. Diagnosis for therapeutic purposes, the use of roentgen rays for diagnostic and therapeutic purposes, radium for therapeutic purposes, the practice of orthopedic, the use of electricity for surgical purposes including cauterization and major and minor surgery are not authorized under the term physical therapy.

COMMITTEE ON MENTAL HEALTH

Mental Health Activities of State Medical Associations

In January of this year, Dr. George Lull, Secretary of the Association wrote to each of the secretaries of the state and territorial medical associations advising them that the newly formed Committee on Mental Health of the A M A had had several meetings, and that one of the matters discussed had been the possibility of establishing a strong liaison between this new committee and committees on mental health or mental hygiene of state medical associations for the purpose of exchanging plans and information.

To date, some 26 replies have been received from secretaries of state associations or from chairmen of committees on mental health of these associations. These letters indicate that 24 of the 26 associations have already established committees on mental health or mental hygiene and have active programs underway. In many instances, replies indicated not only that committees had been formed but also described the types of work that had already been undertaken.

The Committee on Mental Health has reviewed the replies, and has prepared the material in summary form for distribution to state and territorial associations. Inasmuch as the replies from the state associations indicated that the programs that are now underway vary widely from a broad range of activities to participation in only a few activities, we thought it of value to list some of the activities in which state association committees on mental health might take an active interest. Many of these activities have already been sponsored in some of the states.

1 Study of Blue Cross Blue Shield and other medical service plans to determine ways by which these plans may more effectively provide for treatment of mental and emotional illness (Bennett, A. E., Hargrove, E. A., and Engle, B. Voluntary Health Insurance and Nervous and Mental Disease, J A M A 151:202 [Jan 17] 1953).

2 Establishment of citizen groups for promotion of mental health education services (women's auxiliaries).

3 Recommendations to legislatures for increased budgets for mental institutions (Present average is about a \$2 per patient per day level for patient maintenance. It has been demonstrated that this low budgetary level is responsible in great part for the present nationwide difficulty in properly caring for patients in mental institutions [The Mental Health Programs of the Forty-Eight States, Council of State Governments, Chicago, 1950]). The Committee on Mental Health of the American Medical Association and the American Psychiatric Association are both in agreement that budgetary levels need to be materially increased. Under present conditions, they should approximate a level of \$5 per patient per day.

4 Serving as a central office for dissemination of information on programs for mental health to the medical profession and public.

5 Efforts toward the establishment of psychiatric departments or services in general hospitals and increasing other psychiatric services in the community.

6 Recommendations to legislative committees of state medical associations that changes or amendments be made in medical practice acts to include "mental illness" and "psychotherapy" as being within the legal definition and responsibility of the practice of medicine.

7 Improvement of facilities and level of professional care in state institutions for care of mentally ill (See Standards for Psychiatric Hospitals and Clinics, Prepared by the Committee on Psychiatric Hospital Standards and Policies, American Psychiatric Association, 1951).

8 Establishment of facilities for psychiatric consultation to courts and penal institutions.

9 Review of, and sponsorship of, legislation for state mental health activities relating to problems of alcoholism and addiction.

10 Sponsorship of improved state laws for commitment to mental institutions and provision for and encouragement of voluntary admissions to mental institutions (References to improve statutes are carried in The Mental Health Program of the Forty Eight States, Council of State Governments, Chicago, 1950).

11 Sponsorship of programs for postgraduate education of physicians in the utilization of psychiatric principles in the practice of medicine.

12 Sponsorship of programs in psychiatry and mental health in county society meetings during Mental Health Week in May of each year.

13 Encourage the setting up of collaborating Committees on Mental Health in all county societies.

As one of the activities of the A M A Committee on Mental Health for 1953, we are undertaking jointly with the American Psychiatric Association a meeting of executives of 50 or more organizations on a national level who now participate in work in the mental health field. At this meeting, we will review what is now being done by the many interested groups, and hope we will be able to establish a set of plans and objectives for our own committee that will best define our own proper spheres of activity. We particularly wish to avoid duplicating effective work that is now being accomplished by other national groups.

It has been suggested that following this meeting that a second meeting be sponsored by this committee to include mental health representatives of the state associations and county societies, with a view toward establishing coordinated planning for mental health activities by organized medicine as represented by the Association and affiliated state and county societies.

Leo H. Bartemeier, M.D.
Chairman
Committee on Mental Health

PROCEEDINGS OF NEW YORK MEETING

Resolutions on Advertising of Medical Products

Resolutions on Advertising of Medical Products were introduced in the House of Delegates at the New York Meeting by Dr. Wendell C. Stover, Indiana (see THE JOURNAL for June 27, 1953, page 844) and were referred to the Reference Committee on Miscellaneous Business.

The report of the reference committee on these resolutions, which was adopted by the House of Delegates, was inadvertently omitted from the published proceedings. It reads as follows:

With regard to the Indiana resolution concerning advertising of medical products, your committee has considered this most important matter and has listened to a great deal of very pertinent discussion by individual physicians, the Editor of THE JOURNAL and the Secretary of the Committee on Research of the Council on Pharmacy and Chemistry. We have concluded that this is a problem that cannot be solved by action of the House. The solution must depend on action of the Board of Trustees. Your committee therefore recommends that this matter be referred to the Board of Trustees, with the urgent request that it set up mechanisms that will in the future prevent the situation whereby advertisements in any or all American Medical Association publications are at variance with the scientific and editorial content of these publications. It also recommends that the same policy be followed by all other medical journals.

MEDICAL NEWS

CALIFORNIA

Society News.—At its annual meeting, the California Society of Allergy elected Dr Grace M Talbott, San Francisco, president, Dr Norman M Shure, Los Angeles, president-elect, and Dr Lazarre J Courtright, San Francisco, secretary treasurer

Hospital Establishes Scholarship Plan.—In a plan initiated by Dr Charles L Lowman, director of education and rehabilitation, the Orthopaedic Hospital in Los Angeles has established tuition loan scholarships at the University of Southern California, Los Angeles, for students interested in becoming physical or occupational therapists. The plan provides for three tuition scholarships a year (\$772 each, per school year) over a period of five years, when, it is anticipated, the loan fund will be self sustaining. Recipients will be asked to repay the loans, probably at a 6% interest rate, following graduation, with repayment based on the following plan: 20% the first year, 30% the second, 40% the third, and 10% the fourth year. Graduates employed by the Orthopaedic Hospital will not be charged interest over the period of employment. Students interested in the loans apply directly to the University of Southern California, which handles the Charles LeRoy Lowman Fund.

COLORADO

Warning—Magazine Salesman.—The Denver Area Better Business Bureau reports that Lauren Graff, a magazine salesman, recently victimized Denver physicians and dentists by taking magazine subscriptions for which he collected the money in advance and then failed to turn in the subscriptions. In Denver, he gave a fictitious address. He is described as a slight young man in his early 20s. He has a sallow complexion and light brown hair, is about 5 ft 3 in tall, and weighs 110 lb. He has a crippled right hand and walks with a limp. He represents himself as a salesman for the Keystone Readers Service of Los Angeles but is no longer in their employ.

CONNECTICUT

University News.—Joseph K Hill, Ph D, lecturer in education and public health at Yale University School of Medicine, New Haven, has been appointed assistant professor of public health and preventive medicine at the State University of New York College of Medicine at Syracuse.

Appoint Surgeon General of National Guard.—Lieut Col Joseph E Sokal, New Haven, commanding officer of the 118th Medical Battalion, 43rd Infantry Division, Connecticut National Guard, has been appointed Surgeon General of Connecticut. He succeeds Brig Gen William B Smith of Wethersfield, who retired last month upon reaching the statutory age limit. On active duty with the U S Army Medical Corps from 1942 to 1946, Dr Sokal spent three years in the Pacific theater, most of that time with the 'Fighting 69th Regiment of the 27th Infantry Division. Veteran of two beach heads, Makin and Saipan Islands, he also served with occupation forces in Japan as a regimental surgeon in the Eleventh Airborne Division.

ILLINOIS

Rabies Quarantine.—A portion of Downers Grove township, Du Page County, was recently placed under rabies quarantine after five children were bitten by a rabid fox terrier. Hinsdale has also been placed under antirabies quarantine for three months. During this time the dogs in Hinsdale must be kept

on their own property as a precautionary measure. Vaccination of all dogs is required by Hinsdale ordinance before a license can be issued. Fines of \$25 to \$100 are provided for quarantine violations.

Personal.—Dr Samuel P Durr, Rock Island, has resigned as city physician after five years in that office. Dr David A Goldsmith, who was formerly affiliated with Wesley Memorial Hospital and Cook County Hospital in Chicago and with Veterans Administration hospitals in Hines, Ill., and in Iron Mountain, Mich., has been appointed Dr Durr's successor. During World War II Dr Goldsmith served as a lieutenant in the Navy Medical Corps. During the 50th anniversary commencement program at James Millikin University, Decatur, Dr R Zink Sanders of that city was named alumnus of the year.

CHICAGO

Portal House Moves.—Portal House of the Chicago Committee on Alcoholism has moved to new quarters at 743 N Wabash Ave., Chicago 11. The telephone number is MOhawk 4-5536.

Rheumatic Fever Institute in October.—The board of trustees of La Rabida Sanitarium announces that an institute in rheumatic fever will be held for the first time on Oct. 12 and annually thereafter. This is the anniversary period of the opening of the hospital on Oct. 21, 1932. On Oct. 16 the trustees will dedicate the new Gertrude F Pick Memorial Center for community service in rheumatic fever. On Robert A Black Day, a lecture in Dr Black's memory will be inaugurated. The five day institute will be conducted by members of the hospital staff and persons from the medical schools in Chicago with which the hospital is affiliated and by invited guests. It will be directed primarily to general practitioners, nurses, social workers, occupational therapists, and dentists. There will be scientific sessions and sessions for the public. Advance registration will be required for those who wish to attend the entire five day session. Visitors to individual sessions will be admitted by card on previous application. There will be no admission or tuition charge. Information will be supplied by circular on application to Institute, La Rabida Sanitarium, E 65th St and South Shore Drive, Chicago 49.

MAINE

Emergency Poliomyelitis Equipment.—The Portland office of the National Foundation for Infantile Paralysis is acquiring information from hospitals throughout the state to determine their equipment resources, including iron lungs and hot pack machines. This information will be catalogued and used for emergency situations. Physicians may obtain information on the location of equipment by calling the Maine state office of the National Foundation for Infantile Paralysis at Portland 2-8353. After hours call Mr George H Hawkins, Bar Mills 5211, Mr Paul F Hungerford, Westbrook 1312 J, or Miss Butkis, office secretary, Portland 4 3370.

MASSACHUSETTS

Dr Wilnsky to Retire.—Dr Charles F Wilnsky, executive director, Beth Israel Hospital, Boston, will retire Sept. 1 after 25 years of service in the field of hospital administration. On retiring from his post as assistant health commissioner of the City of Boston last January, he was appointed consultant to the Boston Department of Health. In the current year, the Massachusetts Public Health Association presented him with the Lemuel Shattuck Award, and Suffolk University conferred on him an honorary doctorate. Dr Cecil G Sheps, who will succeed Dr Wilnsky, is currently director of program planning and research professor at the University of North Carolina, Chapel Hill.

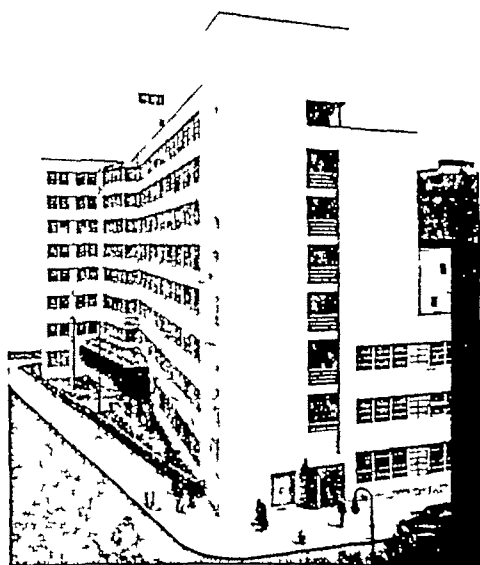
Physicians are invited to send to this department items of news of general interest, for example those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

NEW YORK

Eastman Gift to Hospital—A gift of \$1,200,000 from the Eastman Kodak Company makes up the difference between the funds available and the funds required to complete, including necessary equipment, the 245 bed Northside Hospital in Rochester. The eight story institution will be erected on a 75 acre tract on the west side of Portland Ave., just north of the city line. A new type of call system between patient rooms and nurses stations is planned that will enable the nurse on duty to communicate directly with the patient.

New York City

Beekman Downtown Hospital Dedicated—The new \$5,500,000 Beekman Downtown Hospital, said to be the first voluntary general hospital to be built in Manhattan in 20 years, was recently dedicated. The building at Beekman and William streets, which replaces the structure at Beekman and Water streets, has a bed capacity of 170, and it will serve many more clinic or outpatients than formerly. Because the eight story



Beekman Downtown Hospital

structure is built on two street levels, the new hospital has two main floors with access to the street. There are 31 private and semiprivate rooms, 115 ward beds, and 5 operating rooms. Dr. Robert H. Kennedy heads the medical board.

OHIO

Fetterman Memorial Fund—Friends of the late Dr. Joseph L. Fetterman have established the Joseph L. Fetterman Memorial Fund for cancer research at Western Reserve University School of Medicine, Cleveland. Contributions for the fund may be sent to the medical school or to the Cleveland Chapter of the American Cancer Society.

Dr. Peters Goes to Tulane—Lawrence Peters, Ph.D., associate professor in pharmacology at Western Reserve University School of Medicine, Cleveland, has been appointed professor of pharmacology, Tulane University of Louisiana School of Medicine, New Orleans, to succeed Dr. Ralph G. Smith, who resigned in 1950 to join the U.S. Food and Drug Administration. Dr. Peters from 1942 to 1944 served in the medical research division of Sharp and Dohme, Inc. He has been affiliated with the Western Reserve University School of Medicine in Cleveland since that time and in 1950 was appointed a scholar in medical science by the John and Mary R. Markle Foundation.

PENNSYLVANIA

Gavel of Mastodon Ivory—The Philadelphia County Medical Society has received from Dr. George E. Pfahler, Philadelphia, a gavel made of mastodon ivory obtained in Alaska. In presenting the gavel he said: "The mastodons in Alaska were present in the Pleistocene Period, probably 25,000 years ago, when Alaska had a tropical climate." Dr. Pfahler recently presented a similar gavel to the American College of Radiology.

Personal—Dr. John R. Simpson, Huntingdon, was honored at the annual alumni luncheon of his alma mater, Franklin and Marshall College, Lancaster, when the alumni medal for distinguished service to the college and the alumni association was presented to him. Dr. J. Lumen Popp, New Castle, was recently honored at the Elks Home when the Fraternal Order of Police presented him with a badge as honorary chief of police and a certificate of honor that stated that he had given his efforts unselfishly in behalf of the police. Dr. Leroy E. Chapman, Warren, received an honorary degree at the 70th commencement exercises of the Philadelphia Textile Institute in Germantown on June 13. Dr. Chapman has been a member of the state senate since 1930. He holds honorary degrees from Hahnemann Medical College and Hospital of Philadelphia, Temple University, and Woman's Medical College of Pennsylvania, Philadelphia.

Philadelphia

University News—The National Foundation for Infantile Paralysis has made a five year March of Dimes grant of \$120,000 to the University of Pennsylvania School of Medicine, where the new rehabilitation center for aid of the physically handicapped will soon be in operation. The center will be directed by a commission on rehabilitation composed of department heads in the medical school and hospital of the University of Pennsylvania, with Dr. George Morris Piersol as chairman. Dr. William Dunbar, associate in medicine, public health and preventive medicine, has been appointed coordinator of rehabilitation to promote the rehabilitation teaching program in the medical school and to maintain contacts between the university hospital and the outside agencies that will cooperate in the various phases of physical medicine and rehabilitation.

VERMONT

Expand Cardiac Program—A training grant of \$13,867 to the University of Vermont College of Medicine, Burlington, by the National Heart Institute will be used to expand the college teaching program in heart diseases, according to an announcement from Dr. George A. Wolf Jr., dean. Dr. Ellsworth L. Amidon, professor of medicine, will act as training program director. Facilities of the heart unit of the Bishop deGoesbriand Hospital will be developed under Drs. Wilhelm Raab and Eugene Lepeschkin.

WEST VIRGINIA

State Medical Meeting at White Sulphur Springs—The annual meeting of the West Virginia State Medical Association will be held at the Greenbrier White Sulphur Springs, July 23-25, under the presidency of Dr. James S. Klumpp, Huntington. A symposium on pain will open the scientific sessions Thursday morning, with Dr. Oscar B. Biern, Huntington, as moderator. Participants will be Dr. Bayard T. Horton, Rochester, Minn., Headache General Consideration; Dr. Albert I. Mendeloff, St. Louis, Practical Application of Recent Studies in Abdominal Pain; and Dr. Frank H. Mayfield, Cincinnati, Relief of Intractable Pain. A panel discussion will follow Thursday afternoon. Dr. Pat A. Tuckwiller, Charleston, will preside at a clinical pathological conference. At 6 p.m., a social hour will precede the Medical College of Virginia alumni dinner at which Dr. Jacob C. Huffman, Buckhannon, president of the West Virginia chapter, will be in charge. Thursday evening has been designated auxiliary night. A "chuck wagon dinner in the Colonnades dining room will be

followed by an old fashioned square dance in the ballroom Friday morning a symposium on emergencies in general practice will be moderated by Dr James L. Patterson, Logan. Participating will be Dr Thomas M. Durant, Philadelphia, "Cardiovascular Emergencies in General Practice", Dr Clarence Dennis, Brooklyn, "Surgical Emergencies", Dr Charles S. Stevenson, Detroit, "Obstetric and Gynecologic Emergencies", and Dr Edward L. Bortz, Philadelphia, "Medical Emergencies in Senior Citizens." A panel discussion, "What's New?" will follow.

Dr Klumpp will deliver the presidential address "The Price of Glory" at 9:30 p. m. Friday, after which Dr Edward J. McCormick, Toledo, Ohio, President of the American Medical Association, will speak on "The Public Service of the American Medical Association." On Saturday Dr Theodore P. Mantz, Charleston, will serve as moderator for the following program: Management of the Hard of Hearing Patient, Dr Richard E. Marcus, Chicago, "Diagnosis of Bone Tumors," Dr Vincent W. Archer, Charlottesville, Va., "Surgery of Trauma," Dr Edward J. McCormick, and "A Doctor's Responsibility in the Changing Order," Dr Howard A. Rusk, New York. A question and answer period will follow. Dr Dean L. Hosmer will moderate a symposium on low back pain, in which collaborators will be Drs Robert W. Johnson Jr., Baltimore, Frank H. Mayfield, Cincinnati, Vincent W. Archer, Charlottesville, Va., and Charles S. Stevenson, Detroit.

WISCONSIN

Course in Obstetrics—The University of Wisconsin Medical School, Madison, will present a postgraduate course in obstetrics, Sept. 1-3, under the direction of Dr John W. Harris and with the cooperation of all members of the department of obstetrics and gynecology. Dr Curtis J. Lund, professor of obstetrics and gynecology, University of Rochester (N. Y.) School of Medicine and Dentistry, will be the guest faculty member.

Personal—Dr Mildred E. Scott, who has been with the U. S. Public Health Service on loan to the Florida and Oregon state boards of health since 1949, has been appointed director of the state board of health's division of tuberculosis and heart disease control.—Dr Frank F. Newell was recently honored at a meeting of the Kiwanis Club of Burlington, where he has practiced for more than 50 years and where his father, the late Dr George Newell, and his brother, the late Dr G. Warren Newell, also practiced.

Appoint Head of Pathology Department—Dr Joseph F. Kuzma, Milwaukee, has been named director of the pathology department at Marquette University School of Medicine, Milwaukee, to succeed Dr W. A. Douglas Anderson, now chairman of the pathology department at Jackson Memorial Hospital, Miami, Fla. A member of Marquette's medical faculty for 13 years, Dr Kuzma has been promoted to the rank of professor. He has resigned as director of laboratories at Milwaukee County Hospital to accept full time appointment.

Academy Essay Contest—The Milwaukee Academy of Medicine and the Rogers Memorial Sanitarium offer prizes of \$200 and \$100 for the two most meritorious studies in neurology, psychiatry, and psychosomatic medicine. The contest is open to all members of the profession who are citizens of Wisconsin, whether actually in residence or not, and to those who, while not ordinarily residents of the state, are stationed in Wisconsin in the armed forces. Papers must be submitted in triplicate, double spaced, to the office of the Academy of Medicine, 561 N. 15th St., Milwaukee 3, not later than Dec. 1.

WYOMING

State Medical Election—At the annual meeting in Casper, the Wyoming State Medical Society elected Dr James W. Sampson, Sheridan, president, Dr Bernard J. Sullivan, Laramie, president elect, Dr Nels A. Vicklund, Thermopolis, vice-president, Dr Royce D. Tebbet, Casper, secretary, and Dr Curtis L. Rogers, Sheridan, treasurer. The 1954 meeting will be held in Sheridan during the first part of June.

GENERAL

Fellowship in Tuberculosis—The New York Tuberculosis and Health Association announces that the James Alexander Miller Fellowship for Research, with an annual stipend of \$5,000, will be available from July 1, 1954, to June 30, 1955. The fellowship is designed to support a qualified medical investigator who will devote full time to a research project with a definite bearing on tuberculosis. Awards will be announced Dec. 1. Application forms will be supplied on request by the New York Tuberculosis and Health Association, 386 Fourth Ave., New York 16.

Rheumatology Prize—Under the patronage of the Società Italiana di Reumatologia, Acqui's Health Resort office announces an international competition for an original, unpublished medical article dealing with the physiopathology, clinical history, and therapy of rheumatic and arthritic diseases. The prize of 1 million Italian liras (approximately \$1,600) will be awarded by the international judging commission. Articles may be written in Italian, French, English, Spanish, or German. The competition will close Jan. 31, 1954. For information, apply to the Azienda Autonoma di Cura—Acqui (Piemonte, Italy).

Damon Runyon Cancer Grants—The Damon Runyon Memorial Fund for Cancer Research, Inc., announces that since its inception in 1946, its nationwide grants have totaled \$6,708,347 to 246 fellows and 166 institutions in 46 states, the District of Columbia, and 14 foreign countries. Among the institutional grants for May, the largest (\$46,000) was made to Memorial Center for Cancer and Allied Diseases for two projects under the direction of Dr Cornelius P. Rhoads: "Studies on Serum Iodine and Serum Protein in Relation to Thyroid Function and to Treatment with Radioiodine" and "Clinical Studies of Viruses as Antineoplastic Agents."

WHO to Commemorate Nightingale Centennial—The executive board of the World Health Organization, at a recent session in Geneva, supported a Uruguayan proposal for the suitable commemoration in 1954 of the 100th anniversary of the work started by Florence Nightingale in providing nursing assistance to the sick and in the organization of nursing services. The board suggested that the theme for World Health Day in 1954 be some subject related to the role of nursing in public health, including reference to the work of Florence Nightingale. The seventh World Health Assembly will be convened at the Palais des Nations, Geneva, May 4, 1954, and the next meeting of the executive board will begin in Geneva Jan. 12, 1954.

Palmer Fellowships Awarded—Recipients of the first two-year Lowell M. Palmer Senior Fellowships in the Medical Sciences (J. A. M. A. 151:397 [Jan. 31] 1953), totaling \$88,000, have been announced by Dr Walsh McDermott, associate professor of medicine, Cornell University Medical College, New York, and Dr Geoffrey W. Rake, medical director, E. R. Squibb & Sons, chairman and vice chairman, respectively, of the selection board of the Lowell M. Palmer Fund. The fellows and their fields are: Dr Joseph Dancis, New York University College of Medicine (physiology of newborn), Dr Franklin W. Heggeness, University of Rochester School of Medicine and Dentistry (physiology of gastrointestinal tract), Dr Charles A. LeMaistre, Cornell University Medical College, New York (chronic bacterial infections), Dr William R. Milnor, Johns Hopkins University School of Medicine, Baltimore (cardiovascular research), Dr David T. Karzon, University of Buffalo School of Medicine (viral infections), and Dr Maurice S. Raben, Tufts College Medical School, Boston (pituitary hormones).

Incidence of Leprosy—According to reports from the American Geographical Society, there are about 2,000 cases of leprosy in the United States. All of the known cases in the United States are being or have been treated at the U. S. Marine Hospital (National Leprosarium) in Carville, La. The most heavily infected areas in the world are in Oceania, the East Coast of India, Northern Burma, and tropical Africa. The least infected locations are in Western Europe and in the

northern part of the Western Hemisphere. The significant rates of infection range from 0.008 per 1,000 in Tlaxcala State in Mexico, the least infected of the affected areas, to some 200 per 1,000 in the most seriously infected place, Easter Island. The world total of leprosy cases is estimated at about 5 million. The Leonard Wood Memorial, various religious groups, and the American Geographical Society plan to distribute a new map showing the world distribution of leprosy to every member attending the Sixth International Congress of Leprosy in Madrid in October, 1953.

Urological Research Foundation, Inc.—The American Urological Association recently authorized organization of the American Urological Research Foundation, Inc. The foundation, chartered in Ohio, elected Dr Charles C Higgins, Cleveland, president, Dr Carl F Rusche, Los Angeles, vice president, Dr Thomas D Moore, Memphis, Tenn., secretary, and Dr Reed M Nesbit, Ann Arbor, Mich., treasurer. The foundation is on a nonprofit basis, and all contributions will be used in urological research, except for minimal administrative expenses. The officers and trustees serve without compensation. In addition to an initial donation of \$25,000 authorized by the parent organization, a number of contributions have already been received, and the following grants have been approved by the board of trustees: \$2,500 to Dr Perry B Hudson of Francis Delafield Hospital at Columbia University College of Physicians and Surgeons, New York, for a study of urinary steroid patterns in the postadrenalectomy state, and \$3,850 to Dr Thaddeus S Danowski of the Children's Hospital, University of Pittsburgh School of Medicine, for studies on the renotropic property of growth hormone in chronic renal disease.

Methodist Hall of Fame—Two of the five new members added to the Methodist Hall of Fame in Philanthropy in 1953 are physicians. A total of 26 persons have been thus honored since 1949. At the annual meeting of the National Association of Methodist Hospitals and Homes, this honor was accorded to (1) Dr Malcolm Thomas MacEachern, Chicago, 'Physician, teacher, administrator interested in hospitals and exercising notable influence in the constant lifting of their standards of service—sought after for assistance in problems of curriculum, organization, administration, and generous in response recognized by his colleagues for ability and character as a citizen of the world he has put continents in his debt,' and (2) Dr Watson S Rankin, Charlotte, N C, 'North Carolina State Health officer for 16 years. Trustee, the Duke Endowment, since 1925—director, Hospital and Orphans Sections, The Duke Endowment, 25 years—giving a lifetime of service to the sick, suffering and needy through the administration of assistance by the Duke Endowment to thousands of orphan children without regard to race or creed. A physician administrator without peer, but above all in his living a true interpreter of the Christian religion and a follower of the teachings of the Great Physician.'

Society News—At its recent meeting, the American Ophthalmological Society elected Dr William L Benedict, Rochester, Minn., president, Dr Everett L Goar, Houston, Texas, vice-president, Dr Maynard C Wheeler, New York, secretary, treasurer, and Dr Gordon M Bruce, New York, editor. The American Broncho-Esophagological Association recently elected Dr Edwin N Broyles, Baltimore, president, Dr Leighton F Johnson, Boston, vice president, Dr F Johnson Putney, Philadelphia, secretary, Dr Clyde A Heatly, Rochester, N Y, treasurer, and Dr Francis W Davison, Danville, Pa., editor. At the annual scientific session of the American Dermatological Association in Lake Placid, N Y, Dr Louis A. Brunsting, Rochester, Minn., was elected president, Dr George C Andrews, New York, vice president, Dr J Lamar Callaway, Durham, N C, secretary, and Dr Frank C Combes, New York, treasurer. At the annual meeting of the American Neurological Association in Atlantic City, N J, the following officers were elected: president, Dr Roland P Mackay, Chicago; president-elect, Dr Percival Bailey, Chicago; vice presidents, Drs William G Lennox, Boston, and H Russell Meyers, Iowa City; secretary, treasurer, Dr H Houston

Merritt, New York, and assistant secretary, Dr Charles Rupp, Philadelphia. At the annual convention, the American College of Cardiology installed Dr Robert P Glover, Philadelphia, president, and named Dr Ashton Graybiel, Pensacola, Fla., president-elect, David B Dill, Ph D, U S Army Chemical Center, Md (physiology), Dr Hubert Mann, New York, and John C Krantz Jr, Ph D, Baltimore (pharmacology), vice-presidents, Dr Philip Reichert, New York, secretary, and Dr Seymour Fiske, New York, treasurer. At the annual meeting in New York, the American College of Chest Physicians elected Dr Alvis E Greer, Houston, Texas, president, Dr William A Hudson, Detroit, president-elect, Drs James H Stygall, Indianapolis, and Herman J Moersch, Rochester, Minn., vice presidents, and Dr Charles K Petter, Waukegan, Ill., treasurer.

Prevalence of Poliomyelitis—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories, and possessions in the weeks ended as indicated:

Area	June 27, 1953		June 28, 1952 Total
	Paralytic Type	Total Cases Reported	
New England States			
Maine		1	8
New Hampshire		3	
Vermont			1
Massachusetts	1	3	1
Rhode Island	1	2	
Connecticut		6	2
Middle Atlantic States			
New York	4	28	21
New Jersey		8	3
Pennsylvania		12	4
East North Central States			
Ohio	4	21	22
Indiana		7	9
Illinois	4	18	8
Michigan	6	11	13
Wisconsin		4	10
West North Central States			
Minnesota	4	13	9
Iowa	1	1	20
Missouri	4	17	5
North Dakota		5	1
South Dakota		1	2
Nebraska	1	10	19
Kansas			
South Atlantic States			
Delaware		2	
Maryland	2	2	
District of Columbia		2	1
Virginia	2	5	
West Virginia	3	8	6
North Carolina	18	32	9
South Carolina	1	2	1
Georgia	2	18	16
Florida	3	9	10
East South Central States			
Kentucky	3	12	4
Tennessee	5	19	9
Alabama	23	39	8
Mississippi		27	23
West South Central States			
Arkansas	3	11	8
Louisiana	8	29	30
Oklahoma	3	20	22
Texas	9	63	206
Mountain States			
Montana			6
Idaho		1	
Wyoming		1	2
Colorado		2	5
New Mexico		4	6
Arizona		3	2
Utah			
Nevada			
Pacific States			
Washington		1	14
Oregon		2	2
California	1	59	89
Territories and Possessions			
Alaska		3	
Hawaii		1	
Puerto Rico	1		6
Total	144	542	680

FOREIGN

Home Fatalities in Britain—According to a current Home Office report, domestic accidents in Britain outnumber traffic fatalities 48,000 road deaths were reported from 1940 to 1949 and 60,000 fatalities as a result of falls, burns, scalds, suffocation, and gas poisoning in the home

Journées Médicales—The societies of general medicine of France, the French Union, and foreign countries are invited to participate in the Journées Médicales, which will be held in Paris, April 21-25, 1954. Request for enrollment should be sent to the Secretariat of the Journées, 12, rue Pierre Geoffroy, Colombes (Seine). Enrollment is free to the participating societies, each of which will be entitled to present a report on a subject of its own choice. The name of the reporter and the subject chosen should be sent to the secretariat before Oct 1. In addition to free communications, one session will be devoted to study and discussion of 'The Prolongation and Improvement of Life by Prophylaxis of Atherosclerosis'.

Congress of Leprosy—The Sixth International Congress of Leprosy will be held in Madrid, Spain, on Oct 3-10. Main subjects for discussion are treatment with new drugs, immunology, revision of classification, and control of leprosy. Titles and short abstracts of papers to be read at the congress should be sent to the general secretary of the organizing committee, Felix Contreras, Moreta 15, Madrid. Abstracts should be limited to 200 to 300 words, papers written by individual persons to 1,500 words, and papers written jointly to 2,000 words. Notice of intention to attend the congress should be sent to the General Secretary, International Leprosy Association, 167 Victoria St., London, S.W. 1, before the end of July. The registration fee for members is \$10 and for non-members \$20, for persons accompanying members who register for attendance at social functions it is \$5.

International Meeting on Military Medicine—The International Committee of Military Medicine and Pharmacy announces that the 16th session of the International Office of Documentation of Military Medicine and Pharmacy will be held in Rome by invitation of the Italian government, Oct. 14-18. All officers of the military, naval, and air health services, active or reserve, are invited to participate. The program will include presentation of reports on the resolutions adopted by the 15th session on (1) international medical law (development of the question) and (2) the international insignia of army health services. The results of international research on the organization of pharmaceutical services in armies, the organization of dental and stomatological services, and female sanitary personnel in armies will be presented. Enrollment should be made before Sept 1. Reduced railroad rates will be available. Information may be obtained from Col. Medecin Prof. A. Campana, secretary of the 16th session of the Office, Ministero della Difesa, Esercito, Rome.

DEATHS IN OTHER COUNTRIES

Dr. Frederick William Edridge Green died April 18, aged 89. He invented the color perception spectrometer and color perception lantern used in the British navy's official color test. He was the Hunterian Professor and the Arris and Gale Lecturer at the Royal College of Surgeons.

CORRECTIONS

Instrument for Continuous Recording of Body Temperature—In the clinical note by this title in THE JOURNAL, June 13, 1953, page 610 the credit line at the bottom of the page should read as follows: From the Department of Surgery, Maimonides Hospital, and the State University of New York, College of Medicine, New York.

Carcinoma of the Stomach—In the last sentence of the article by this title in THE JOURNAL, April 18, 1953, page 1384, the statement is made "The resectability rate increased 48%, the hospital mortality rate decreased to zero, and the five year survival rate increased 20%." The statement that the hospital mortality rate decreased to zero is in error. The fact is that

from 1940 to 1949 there was a 100% improvement in the mortality rate as compared with the patients operated on the period 1907 to 1937, the mortality rate in the earlier period being 16% and that in the later period being 8%.

EXAMINATIONS
AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

- ALASKA * Anchorage and Juneau Sept 7 Sec, Dr W M Whitehead, 172 South Franklin St Juneau
- COLORADO * *Reciprocity* Denver July 14 Final date for filing applications was June 12 Exec Sec Mrs B H Hudgens 831 Republic Bldg Denver 2
- CONNECTICUT * *Regular Examination* Hartford July 14-15 Sec Dr Creighton Barker 160 St Ronan St New Haven *Homeopathic* Derby July 14-15 Sec Dr Donald A Davis 38 Elizabeth St Derby
- DELAWARE Dover July 14-16 Sec Dr Joseph S McDaniel 229 South State St Dover
- GUAM The Commission on Licensure will meet whenever a candidate appears or submits his credentials Ex. Sec Dr Austin W Matthis, Agaña
- HAWAII *Examination* Honolulu July 13-15 Sec Dr I L Tilden 1020 Kaplalani St Honolulu
- IDAHO Boise July 13-15 Exec Sec Mr Armand L. Bird 364 Soma Bldg Boise
- MAINE *Reciprocity and Examination* Augusta July 14-15 Sec Dr Adam P Leighton 192 State St Portland
- MASSACHUSETTS *Examination* Boston July 14-17 Sec Dr Robert C. Cochrane Room 37 State House Boston 33
- MONTANA Helena Oct 5 Sec, Dr S A Cooney 214 Power Block, Helena
- NEW HAMPSHIRE Concord Sept 9 Sec Dr John S Wheeler 107 State House Concord
- NEW MEXICO * Oct 12-13 Santa Fe Sec R C Derbyshire 227 E. Palace Ave Santa Fe
- NORTH CAROLINA *Reciprocity* Blowing Rock Aug 1 Sec, Dr Joseph J Combs 716 Professional Bldg Raleigh
- PENNSYLVANIA *Examination* Philadelphia and Pittsburgh July Act. Sec Mrs Margaret G Steiner Box 911 Harrisburg
- TEXAS Fort Worth Nov 12-14 *Reciprocity* applicants must be completed 30 days prior to the meeting date Sec Dr M H Crabb 1714 Medical Arts Bldg Fort Worth 2
- UTAH *Examination* Salt Lake City July Asst. Dir Mr Frank E. Lees, 324 State Capitol Bldg Salt Lake City
- WASHINGTON * Seattle July 12-15 Sec Mr Edward C Dohm Department of Licenses, Olympia
- WEST VIRGINIA Charleston July 13-15 Sec Dr N H Dyer State Office Bldg Charleston 5
- WISCONSIN * *Examination* Milwaukee July 14-16 Sec Dr A G Koehler 46 Washington Blvd Oshkosh
- PUERTO RICO *Reciprocity* Santurce Aug 4 Sec Mr Luis Cueto Coll, Box 9156 Santurce

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

- ALASKA On application Juneau or other towns in Territory as decided by Board *Reciprocity* On application Sec Dr C. Earl Albrecht Box 1931 Juneau
- COLORADO *Examination* Denver Sept 9-10 Sec Dr Esther B Starks 1459 Ogden St Denver 18
- DISTRICT OF COLUMBIA *Examination* Washington Oct 19-20 Sec Dr Daniel L Seckinger 4130 E Municipal Bldg Washington
- IOWA Des Moines July 14 Sec Dr Ben H Peterson Coe College Cedar Rapids
- OKLAHOMA *Examination* Oklahoma City August 28-29 Sec Dr Clinton Gallaher 813 Braniff Bldg Oklahoma City
- OREGON Portland Aug 29 Final date for filing application is Aug 12. Portland Dec 5 Sec Dr Charles D Byrne University of Oregon Eugene
- TEXAS *Examination* Austin October Chief Clerk Mrs Sandra Allen 407 Perry Brooks Bldg Austin
- WISCONSIN *Examination* Madison Sept 19 Final date for filing application is Sept 11 Milwaukee Dec 5 Final date for filing application is Nov 27 Sec Dr W H Barber 621 Ransom St., Ripon

* Basic Science Certificate required

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr George F Lull, 535 North Dearborn St Chicago 10 Secretary

1953 Clinical Session, St Louis, Dec 1-4

1954 Annual Session San Francisco June 21-25

1954 Clinical Session Miami Florida Nov 30-Dec 3

1955 Annual Session, Atlantic City, N J, June 6-10

1955 Clinical Session Boston, Nov 29-Dec 2.

ALASKA TERRITORIAL MEDICAL ASSOCIATION Sitka July 15-17 Dr William P Blanton P O Box 2569 Juneau Secretary

AMERICAN CONGRESS OF PHYSICAL MEDICINE Palmer House Chicago Aug 31-Sept 4 Dr Walter J Zeiter 30 North Michigan Ave Chicago 2 Executive Director

AMERICAN DIETETIC ASSOCIATION Los Angeles Aug. 24-28 Miss Ruth M Yakel 620 N Michigan Ave Chicago 11 Executive Secretary

AMERICAN ELECTROENCEPHALOGRAPHIC SOCIETY Commander and Continental Hotels Cambridge Mass Aug 17-22 Dr John A Abbott Massachusetts General Hospital Boston 14 Secretary

AMERICAN HOSPITAL ASSOCIATION San Francisco Aug 31-Sept 3 Mr George Bugbee 18 East Division St Chicago 11 Executive Director

AMERICAN VETERINARY MEDICAL ASSOCIATION Royal York Hotel Toronto Canada July 20-23 Dr J G Hardenbergh 600 South Michigan Blvd Chicago 5 Executive Secretary

BIOLOGICAL PHOTOGRAPHIC ASSOCIATION Hotel Statler Los Angeles Aug 31-Sept 3 Miss Jane H Waters 533 West 57th St New York 19 Secretary

GERONTOLOGICAL SOCIETY Mark Hopkins Hotel San Francisco Aug 25-27 Dr Nathan W Shock Baltimore City Hospitals Baltimore 24 Secretary

NATIONAL MEDICAL ASSOCIATION Nashville Tenn Aug 10-14 Dr John T Gliven 1108 Church St Norfolk 10 Va Executive Secretary

POST GRADUATE MEDICAL ASSEMBLY OF SOUTHERN TEXAS Shamrock Hotel Houston July 20-22 Dr C A Dwyer 229 Medical Arts Bldg Houston Secretary

REGIONAL MEETINGS AMERICAN COLLEGE OF PHYSICIANS West Virginia White Sulphur Springs July 24 Dr Paul H Revercomb 1031 Quarrier St Charleston 1 Governor

SOCIETY OF AMERICAN BACTERIOLOGISTS Palace Hotel San Francisco Aug 10-14 Dr John H Bailey Sterling Winthrop Research Institute Rensselaer N Y Secretary

WEST VIRGINIA STATE MEDICAL ASSOCIATION The Greenbrier White Sulphur Springs July 23-25 Mr Charles Lively P O Box 1031 Charleston 24 Executive Secretary

FOREIGN

ASSOCIATION OF SURGEONS OF GREAT BRITAIN AND IRELAND Leeds England May 13-15 1954 Dr Henry W S Wright, 45 Lincoln's Inn Fields, London WC2 England Honorary Secretary

BRITISH MEDICAL ASSOCIATION Cardiff S Wales July 13-17 Dr A MacCrae B M A House Tavistock Square London WC1 England Secretary

CANADIAN MEDICAL ASSOCIATION Vancouver B C Canada June 18-22 1954 Dr T C Routley 135 St Clair Ave W Toronto 5 Ont. Canada General Secretary

CONGRESS OF INTERNATIONAL ANESTHESIA RESEARCH SOCIETY Chateau Frontenac Quebec Canada October 26-29 Dr A. William Friend 515 Nome Ave Akron 20 Ohio Chairman Program Committee

CONGRESS OF THE INTERNATIONAL ASSOCIATION OF LIMNOLOGY Cambridge and Windermere England Aug 20-30 For information write Professor G C Hutchinson Osborn Zoological Laboratory Yale University New Haven Conn U S A

CONGRESS OF THE INTERNATIONAL LEAGUE AGAINST RHEUMATISM Geneva Switzerland and Aix les Bains France Aug 23-29 For information write Dr W Tegner The London Hospital London E1 England

CONGRESS OF THE INTERNATIONAL SOCIETY OF ANGIOLOGY Lisbon Portugal Sept. 18-20 Dr Henry Haimovici 105 East 90th St New York 28 N Y U S A Secretary

CONGRESS OF THE INTERNATIONAL SOCIETY OF SURGERY Lisbon Portugal Sept 14-20 Dr L. Dejardin 141 rue Belliard Brussels Belgium General Secretary

INTERNATIONAL CONFERENCE ON THROMBOSIS AND EMBOLISM Basle Switzerland July 15-19 1954 Dr W Merz, Chief Medical Officer Gynecological Clinic University of Basle Basle Switzerland Hon. Secretary

INTERNATIONAL CONGRESS OF ACUPUNCTURE Kolpinghaus Adolf Kolping Strasse 1 Munich Germany August 22-25 Dr G Bachmann 29 Lillenstrasse München 9 Germany Organizer and Secretary

INTERNATIONAL CONGRESS OF ELECTROENCEPHALOGRAPHY AND CLINICAL NEUROPHYSIOLOGY Boston Mass U S A Aug 18-21 Dr Robert S Schwab Massachusetts General Hospital Boston 14 Mass U S A Secretary-General

INTERNATIONAL CONGRESS OF THE EUROPEAN SOCIETY OF HAEMATOLOGY Amsterdam Holland Sept 8-12 Dr M C. Verloop Malleinsleg 15 Utrecht, Holland Secretary

INTERNATIONAL CONGRESS ON GENETICS Bellagio Italy August 24-31 Prof C Barigozzi Istituto de Genetica Università di Milano 10 via Celoria Milan Italy Secretary

INTERNATIONAL CONGRESS OF HIPPOCRATIC MEDICINE Evian France Sept. 3-6 Prof P Delore 13 rue Jarente Lyon France Secretary-General

INTERNATIONAL CONGRESS FOR HISTORY OF SCIENCE Jerusalem Israel August 3-7 Prof F S Bodenheimer Hebrew University Jerusalem Israel President

INTERNATIONAL CONGRESS OF HYDROCLIMATISM AND THALASSOTHERAPY Dubrovnik Yugoslavia May 8-16 1954 Prof C Playvic Zeleni Venac 1 Belgrade Yugoslavia Secretary General

INTERNATIONAL CONGRESS OF INTERNATIONAL COLLEGE OF SURGEONS Sao Paulo Brazil April 26-May 2 1954 Dr Max Thorek 1516 Lake Shore Drive Chicago Illinois U S A Secretary-General

INTERNATIONAL CONGRESS OF LOGOPEDICS AND PHONETICS Zurich Switzerland Sept 1-5 Dr Deso A Weiss 115 East 86th St New York 28 N Y U S A General Secretary

INTERNATIONAL CONGRESS ON MEDICAL LIBRARIANSHIP London England July 20-25 Mr W R LeFanu % London School of Hygiene and Tropical Medicine Keppel Street London WC1 England Chairman

INTERNATIONAL CONGRESS ON MENTAL HEALTH University of Toronto Toronto Ontario Canada Aug 14-21 1954 For information write Executive Officer International Congress on Mental Health 111 St George St Toronto Ontario Canada

INTERNATIONAL CONGRESS OF MICROBIOLOGY Rome Italy Sept 6-12 For information write Dr V Puntoni Citta Universitaria Rome Italy

INTERNATIONAL CONGRESS ON OBSTETRICS AND GYNECOLOGY Geneva Switzerland July 26-31 1954 Dr H de Wetteville Maternité Hôpital Cantonal Geneva Switzerland President.

INTERNATIONAL CONGRESS OF PAEDIATRICS Havana Cuba Oct 12-17 Prof Felix Hurtado 5a Avenue 124 Miramar Havana Cuba President

INTERNATIONAL CONGRESS OF PSYCHOLOGY Montreal Canada June 7-12 1954 For information write Prof H S Langfeld International Union of Scientific Psychology Eno Hall Princeton University Princeton N J U S A

INTERNATIONAL CONGRESS OF RADIOLOGY Copenhagen Denmark July 19-25 Professor Flemming Norgaard 10 Oster Voldgade Copenhagen K Denmark Secretary General

INTERNATIONAL CONGRESSES OF TROPICAL MEDICINE AND MALARIA Istanbul Turkey Aug 28-Sept 4 Professor Dr Ihsan Sükrü Aksel Tunel Meydan Beyoglu Istanbul Turkey General Secretary

INTERNATIONAL CONGRESS OF ZOOLOGY Copenhagen Denmark Aug 5-12 Dr Anton F Bruun The University Copenhagen Denmark Secretary General

INTERNATIONAL GERONTOLOGICAL CONGRESS London and Oxford England July 12-22 1954 Prof R E Tunbridge General Infirmary Department of Medicine The University Leeds England President

INTERNATIONAL LEPROSY CONGRESS Madrid Spain Oct. 3-10 Dr Felix Contreras Moreto 15 Madrid Spain Secretary

INTERNATIONAL NEUROLOGICAL CONGRESS Lisbon Portugal Sept 7-12 Prof Almeida Lima Avenida do Brazil 53 Lisbon Portugal Secretary General

INTERNATIONAL OFFICE OF DOCUMENTATION OF MILITARY MEDICINE Rome Italy Oct 14-18 Colonel Medecin Prof A Campana Office of the Ministero della Difesa Esercito Rome Italy Secretary

INTERNATIONAL PHYSIOLOGICAL CONGRESS Montreal Canada Aug 31-Sept 4 Dr A S V Burgen Dept of Physiology McGill University Montreal Canada Secretary

INTERNATIONAL PSYCHO-ANALYTICAL CONGRESS Bedford College Regents Park London NW1 England July 26-30 Dr Ruth S Eissler 285 Central Park West New York 24 N Y Hon Secretary

INTERNATIONAL SOCIETY FOR THE STUDY OF BIOLOGICAL RHYTHMS Basle Switzerland Sept 18-19 For information write Prof Dr F Georgi Neurologische Universitäts Poliklinik Soehnstrasse 55 Basle Switzerland

INTERNATIONAL VETERINARY CONGRESS Stockholm Sweden Aug 9-15 Prof Axel Isaksson Institute of Veterinary Medicine Stockholm 50 Sweden Secretary

JOURNEES MEDICALES Paris France April 21-25 1954 For information write Secretariat of the Journees 12 rue Pierre-Geoffroix Colombes (Seine) France

LATIN AMERICAN CONGRESS OF OBSTETRICS AND GYNECOLOGY Buenos Aires, Argentina Oct 26-31

LATIN AMERICAN CONGRESS OF OTORHINOLARYNGOLOGY Caracas Venezuela Feb 21-25 1954 Dr Victoriano Marquez Reveron Centro Medico Caracas Venezuela Secretary-General

PACIFIC SCIENCE CONGRESS Quezon City and Manila Philippines Nov 16-28 Dr Patrocinio Valenzuela College of Pharmacy University of the Philippines Quezon City Philippines Secretary-General

PAN AMERICAN CONGRESS OF THE MEDICAL PRESS Buenos Aires Argentine, July 12-16 Secretaría del Congress 763 Uriburu Buenos Aires Argentine

PAN AMERICAN CONGRESS OF OTORHINOLARYNGOLOGY AND BRONCHESOPHAGOGY Mexico D F Mexico Feb 28-March 4 1954

PAN AMERICAN MEDICAL WOMEN'S ALLIANCE, Beekman Towers Hotel New York N Y Sept 24-Oct 1 Dr Ina Marsh 140 Linwood Ave Buffalo N Y U S A Registration Chairman

PERSIAN GULF MEDICAL SOCIETY Dhahran Saudi Arabia Dec 7-8 Dr N Conan Jr Department of Internal Medicine Arabian American Oil Company Dhahran Saudi Arabia Secretary

SECTIONAL MEETING AMERICAN COLLEGE OF SURGEONS London England May 17-19 1954 Dr Michael L. Mason 40 East Erie St Chicago 11 Ill U S A Secretary

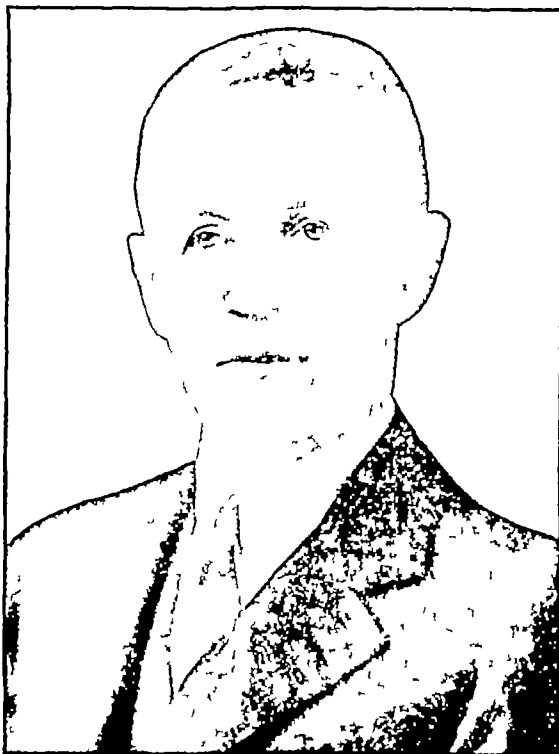
WORLD CONFERENCE ON MEDICAL EDUCATION British Medical Association House Tavistock Square, WC1 London England Aug 22-29 Secretariat World Medical Association 2 East 103d St New York 29 N Y U S A

WORLD CONGRESS OF THE WORLD FEDERATION FOR PHYSICAL THERAPY London England Sept. 7-12 Miss M J Neilson Chartered Society of Physiotherapy Tavistock House South Tavistock Square London, WC1 England Secretary

WORLD MEDICAL ASSOCIATION The Hague Netherlands Aug 31-Sept. 7 Dr Louis H Bauer 345 East 46th St New York 17 N Y Secretary-General

DEATHS

Lahey, Frank Howard * founder and director of the Lahey Clinic in Boston and a past president of the American Medical Association, died in the New England Baptist Hospital June 27, aged 73. Dr. Lahey was born in Haverhill, Mass., June 1, 1880, and received the degree of doctor of medicine from Harvard Medical School in 1904. He served as surgeon in the Long Island Hospital in 1904-1905 and the Boston City Hospital, 1905-1907, and became resident surgeon of the Haymarket Square Relief Station in 1908. In 1908-1909 and from 1912 to 1915 he was an instructor in surgery at his alma mater, where he was professor of clinical surgery in 1923-1924. He was assistant professor and later professor of surgery at Tufts Medical School from 1913 to 1917. During World War I he served as a major in the U. S. Army Medical Corps and also as director of surgery in the American Expeditionary Forces Evacuation Hospital No. 30. An honorary consultant to the medical department of the U. S. Navy, and during World War II chairman of the Procurement and Assignment Service for Medical Personnel for Armed Forces, he was chairman of the Navy's medical board, inspecting nearly every naval hospital in the states and the Pacific. He was member and past president of the American Association for the Study of Goitre and the New England Surgical Society, member and fellow of the International Surgical Society, fellow and a member of the board of governors of the American College of Surgeons, an honorary fellow of the Royal College of Surgeons, England, a member of the American Surgical Association, Société des Chirurgiens de Paris, Southern Surgical Association, American Urological Association, Theta Delta Chi, and the Association for the Study of Internal Secretions, and a member of the founders group of the American Board of Surgery. He was a member of the American Gastroenterological Association, which in 1946 awarded him the Friedenwald medal for his contributions to surgery of the digestive tract, and on May 10, 1946, he received the Henry Jacob Bigelow medal from the Boston Surgical Society. In the American Medical Association he was appointed by President Jabez N. Jackson at the Washington session in 1927 a member of the Council on Scientific Assembly for a term of five years and was reappointed for a five year term (ending in 1937) by President E. H. Cary at the New Orleans session in 1932. He was appointed by President Irvin Abell at the San Francisco session in 1938 as a member of the Council on Medical Education and Hospitals for a term of seven years and resigned following his election as President of the American Medical Association in 1940. He was also a member of the Advisory Committee to Cooperate with the Bureau of Medical Economics of the American Medical Association Outlining the Necessary Procedure for Making Studies and Reports of the Prevailing Need for Medical and Preventive Medical Service (later called the Committee on Medical Care), which was established by the Board of Trustees at its February, 1938, meeting. He was secretary of the



FRANK HOWARD LAHEY, M.D., 1880-1953

Section on Surgery, 1926-1929, and its chairman, 1929-1930. In 1950 he was elected a member of the Council on National Emergency Medical Service of the American Medical Association, and he resigned in 1952. For some time he was surgeon-in-chief of the New England Deaconess and New England Baptist hospitals and director of surgery in the Lahey Clinic. In addition to many periodical articles, he published the *Lahey Clinic* number of the *Surgical Clinics of North America*. He was a member of the editorial boards of *Surgery, Gynecology and Obstetrics* and of the *New England Journal of Medicine*. He received the honorary degree of doctor of science from Tufts College in 1927, from Boston University in 1943, and from Northwestern University, Evanston, Ill., in 1947. On his 60th birthday Dr. Lahey was given a 466 page book containing scientific papers written in his honor by 50 world medical leaders.

Yeomans, Andrew * Norwich, Vt., born in Chicago Dec. 20, 1907, Harvard Medical School, Boston, 1935, since 1947 assistant professor of clinical medicine at Dartmouth Medical School in Hanover, N. H., research fellow in medicine at his alma mater, 1938-1939, in 1940-1941 instructor in medicine at Tufts Medical School, Boston, where he was associate physician at the Pratt Diagnostic Hospital, associate professor of preventive medicine at Johns Hopkins University School of Medicine and assistant visiting physician at Johns Hopkins Hospital in Baltimore, 1946-1947, specialist certified by the American Board of Internal Medicine, fellow of the American College of Physicians, during World War II served in the U. S. Naval Reserve as clinical director of the U. S. Typhus Commission Research Ward in Cairo, Egypt, chief of the medical service at the VA Hospital in White River Junction, Vt., died in Hanover, N. H., April 17, aged 45, of Hodgkin's disease.

McGrath, John Joseph * Belmar, N. J., born in New York City in 1868, College of Physicians and Surgeons, medical department of Columbia College, New York, 1889, formerly professor of operative surgery at New York Post Graduate Medical School, served as professor of surgery at the New York Polyclinic Medical School and Hospital and the Fordham University School of Medicine in New York, an Associate Fellow of the American Medical Association, fellow of the American College of Surgeons, past president of the board of trustees of the Bellevue and Allied Hospitals, consulting surgeon, New York Polyclinic Medical School and Hospital, Fordham and Columbus hospitals, and Norwalk (Conn.) General Hospital, author of "Operative Surgery for Students and Practitioners", died in the Fitkin Memorial Hospital in Neptune, N. J., May 18, aged 85.

Williams, Ford Smith * Jackson, Miss., born in Jackson Dec. 3, 1910, Louisiana State University School of Medicine, New Orleans, 1934, served with the U. S. Public Health Service during World War II, formerly director of the division of venereal diseases of the Louisiana State Board of Health, of which he was assistant director; at one time director of the West Carroll Parish Health Department in Oak Grove,

La and St. Mary Parish Health Department in Franklin, La., affiliated with Mississippi Baptist and Mississippi State Charity hospitals, died May 22, aged 42, of coronary thrombosis

Achorn, Ralph Chase ♂ Swampscott, Mass., Baltimore Medical College, 1908, died April 24, aged 73, of coronary occlusion

Addison, Robert Perry ♂ Dallas, Texas, Baylor University College of Medicine, Dallas, 1926, member of the American Academy of General Practitioners, died in the Baylor University Hospital May 8, aged 53, of cardiac decompensation and hypertension

Baird, Joseph Shannon ♂ Pittsburgh, University of Pennsylvania School of Medicine, Philadelphia, 1916, assistant professor of pediatrics at University of Pittsburgh School of Medicine, member of the American Academy of Pediatrics, formerly vice president of the Pittsburgh Pediatric Society, superintendent and medical director of the Municipal Hospital, where he died May 2, aged 63, of carcinoma of the head of the pancreas with metastases

Brown, Robert A. ♂ Prague, Okla., Baylor University College of Medicine, 1905, died March 23, aged 81, of coronary occlusion

Brown, William Marmaduke ♂ Lexington, Ky., University of Virginia Department of Medicine, Charlottesville, 1919, member of the American Academy of Orthopedic Surgeons, served with the Kentucky Commission for Crippled Children, formerly affiliated with the Shriners Hospital for Crippled Children, died recently, aged 59

Brust, Herbert Oscar ♂ Syracuse, N. Y., Albany (N. Y.) Medical College, 1897, an Associate Fellow of the American Medical Association, member of the American Academy of Ophthalmology and Otolaryngology formerly on the faculty of Syracuse University College of Medicine vice president of the board of trustees and chief of the ear, nose, and throat department, Crouse Irving Hospital, where he died April 30, aged 81, of arteriosclerosis

Burge, H. Gideon ♂ Nettleton, Ark. (licensed in Arkansas in 1903), died in St. Bernard's Hospital, Jonesboro, April 28, aged 81

Cunningham, Harvey Lee ♂ Cape Girardeau, Mo., Missouri Medical College St. Louis, 1889, an Associate Fellow of the American Medical Association, specialist certified by the American Board of Ophthalmology, died April 26, aged 86, of senility

Daly, Jeremiah James, Andover, Mass., Tufts College Medical School Boston, 1903, served on the board of health died April 19, aged 77 of cerebral hemorrhage

Eisenhardt, William G. ♂ Philadelphia, Jefferson Medical College of Philadelphia 1900, served on the staff of Episcopal Hospital, died April 22, aged 76, of cerebral hemorrhage

Gallagher, Joseph Francis ♂ Col., U. S. Army retired Bradenton, Fla., McGill University Faculty of Medicine, Montreal, Canada, 1914, entered the medical corps of the U. S. Army in September, 1919 served during World Wars I and II, retired Aug. 1, 1945, fellow of the American College of Surgeons, died in Tampa, April 25, aged 63, of emphysema, pulmonary fibrosis, and gastric ulcer

Griot, George Augustus ♂ Springfield, Mo., St. Louis University School of Medicine, 1910, on the staffs of the Burge Hospital and Baptist Hospital where he died April 29, aged 72 of carcinoma of the cecum

Hall, Walter George, Brooklyn, University of Pennsylvania School of Medicine, Philadelphia, 1949, resident, Kings County Hospital died May 18, aged 30, of leukemia

Hammell, Harry H. ♂ Tecumseh, Mich., University of Michigan Homeopathic Medical School, Ann Arbor, 1915, served during World Wars I and II for many years member of the board of education on the staff of the Herrick Memorial Hospital, where he died May 19, aged 59, of coronary occlusion

Headland, Courtenay Inglis ♂ Yonkers, N. Y., Harvard Medical School, Boston, 1926, specialist certified by the American Board of Radiology, member of the American College of Radiology, affiliated with Lawrence Hospital in Bronxville and the Dobbs Ferry (N. Y.) Hospital, on the staff of the Yonkers General Hospital where he died May 26, aged 52, of carcinoma of the soft palate

Jensen, Jens Peter, Plainview, Neb., University of Nebraska College of Medicine, Omaha, 1903, died in the Methodist Hospital, Omaha, April 6, aged 82, of heart failure

Johnson, David Morrison ♂ Columbus, Ohio, Jefferson Medical College of Philadelphia, 1922, specialist certified by the American Board of Otolaryngology, member of the American Academy of Ophthalmology and Otolaryngology, served during World War II, on the staffs of the Children's Hospital and the Grant Hospital, where he died May 14, aged 54, of cancer of the lung

Johnson, Jens Andreas William ♂ Marshalltown, Iowa, University of Michigan Homeopathic Medical School, Ann Arbor, 1917, fellow of the American College of Surgeons, on the staffs of the Evangelical Deaconess and Mercy hospitals, died April 26, aged 67, of a heart attack

Jones, Arthur John ♂ Detroit, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1907, affiliated with East Side General Hospital and St. Joseph's Mercy Hospital, where he died April 22, aged 72, of cerebral thrombosis and hypertensive arteriosclerotic heart disease

Jones, Emlyn ♂ Davidsville, Pa., Jefferson Medical College of Philadelphia, 1900, director of the state bureau of vital statistics, Harrisburg, from 1927 to 1935, for many years practiced in Johnstown, formerly county treasurer of Cambria County, in 1943 named deputy secretary of welfare by the state, serving until about a year ago, for many years coroner's physician, on the staff of Conemaugh Valley Memorial Hospital in Johnstown, died April 17, aged 76

Klock, Guy Almeron, Daytona Beach, Fla., University of Michigan Department of Medicine and Surgery, Ann Arbor, 1906, served on the staff of the Halifax District Hospital, died April 15, aged 77, of cerebral hemorrhage

Le Pard, Sherman J., Jamestown, N. Y., Syracuse University College of Medicine, 1909, died in Winchester (Va.) Memorial Hospital April 3, aged 73, of cerebral thrombosis and hypertensive vascular disease

Lutgen, Anson S. ♂ Colby, Kan., Lincoln Medical College of Corner University, 1904, member of the American Association of Railway Surgeons, for many years practiced in Wayne, Neb., where he was college physician for the Nebraska State Teachers College, and city physician, surgeon for the Chicago, Burlington and Quincy Railroad, on the staff of St. Thomas Hospital, where he died April 23, aged 73, of cerebral hemorrhage

McCracken, Jesse Lazear ♂ Smithfield, Pa., Starling-Ohio Medical College, Columbus, 1911, died in Uniontown May 4, aged 67, of a heart attack

MacDonald, John Joseph, Secaucus, N. J., Yale University School of Medicine, New Haven, 1907, served during World War I, assistant medical director of Hudson County General Hospital served on the staffs of St. Francis and Fairmont hospitals in Jersey City, formerly medical director of the skin clinic at the Medical Center of Jersey City, where he died April 16, aged 80

Mahlatjie, Nathaniel M. S., Detroit, Meharry Medical College, Nashville, Tenn., 1930, died May 1, aged 53

Martin, Pierce ♂ Fourmile, Ky., Kentucky University Medical Department, Louisville, 1904, died March 19, aged 74, of carcinoma of the prostate

Mitchell, Joseph Grover ♂ El Dorado, Ark., Medical Department of Tulane University of Louisiana, New Orleans, 1910, specialist certified by the American Board of Otolaryngology, affiliated with Warner Brown Hospital, died May 3, aged 68, of carcinoma of the colon

GOVERNMENT SERVICES

ARMY

Koreans Grateful for Medical Books—Taegu Medical College officials have shown their gratitude for aid given their institution by the Korean Communications Zone Surgeon by presenting Col. Byron L. Steger (Arlington, Va.) with an engraved scroll and silver tea set. An ovation from hundreds of Korean medical students massed in the college auditorium greeted the colonel, who was soon to leave to attend a course at the Army War College in the United States. Colonel Steger was instrumental in raising funds and equipment for the college. Hard hit by the Korean war economy, the college was at one time struggling along without textbooks and proper teaching facilities. Now the institution's library numbers professional books in the hundreds and has general surgical equipment. Its students and faculty receive refresher courses in English from Army physicians stationed in the KComZ Medical Section (THE JOURNAL Jan. 24, 1953, page 319).

NAVY

Admiral Groesbeck Retires and Goes to Indiana—Rear Adm. Leslie O. Stone (MC) assumed command of the National Naval Medical Center, Bethesda, Md., on June 30, on the retirement of the then commanding officer, Rear Adm. Bertram Groesbeck Jr. Admiral Groesbeck's retirement followed more than 35 years of continuous active naval service. Immediately following his retirement, Admiral Groesbeck took up new duties in civil life as director of the department of public health of the state of Indiana, with headquarters at Indianapolis. He received the 1951 Lyster Award, which is presented annually by the Aero Medical Association for outstanding achievements in aviation medicine. He recently was presented with the 1952 Good Government Award of the Bethesda Junior Chamber of Commerce and the Alumni Achievement Award of George Washington University for 1953.

PUBLIC HEALTH SERVICE

Federal Grants and Fellowships—The United States Public Health Service announces that, beginning July 1, applications for postdoctoral and special research fellowships in the field of mental health, as well as in other health fields, will be reviewed twice rather than three times annually. Such applications should be submitted before Oct. 15 or Feb. 15. Awards will be announced about three months later. Research grant applications will continue to be reviewed three times a year, with the following closing dates for the coming year: Aug. 15, Nov. 1, and March 1. Awards will be announced from four to five months after the closing dates. Further information and application forms may be secured from John C. Eberhart, Ph.D., Chief, Research Grants and Fellowships Branch, National Institute of Mental Health, Bethesda 14, Md.

Radiological Health Training Program—Short courses in radiological health are being presented by the Public Health Service at the Environmental Health Center in Cincinnati. These courses are tuition free and are designed primarily to provide professional personnel working in health departments and other organizations with a working knowledge of the health hazards associated with radiation. Candidates should have a degree in medicine, engineering or science (physical or biological). Instruction is given in radiation physics sufficient for an understanding of the problems arising from use of ionizing radiation. Laboratory and lecture periods are pre-

sented covering the hazards and methods of alleviating these hazards, as encountered in employment of x-rays, radioisotopes, neutron fluxes, and particle accelerators.

Courses are two weeks in length. Basic courses, which stress basic radiation physics and survey techniques, will be presented on the following dates: Oct. 5-16, 1953; Jan. 11-22, 1954, and May 3-14, 1954. The basic course or its equivalent is a prerequisite for the intermediate course. Laboratory assay of radioelements and x-ray survey techniques are emphasized in the intermediate course, which will be presented on the following dates: Oct. 19-30, 1953; Jan. 25-Feb. 5, 1954, and May 17-28, 1954. Completion of the intermediate course or its equivalent is a prerequisite for admission to the advanced course. This course, for professional personnel concerned in particular with occupational health problems, will be presented on Feb. 8-19, 1954. Information may be obtained by writing to the Radiological Health Training Section, Public Health Service, Environmental Health Center, Cincinnati, Ohio.

Increase in Annual Birth Rate—The national birth total set a new annual record of 3,889,000 births in 1952, according to statistical estimates released by the Public Health Service. Births during the first quarter of 1953 were running about 29,000 ahead of the same period last year. March was the 10th consecutive month in which the estimated total births topped corresponding monthly figures for the previous year. The level of births for the first three months is at an annual rate of 25 live births per 1,000 population.

Based on registered births alone, 58,000 more couples had a first child in 1951 than in 1950, according to preliminary estimates. This 5% increase in first born children was largely a sequel to the marriage upswing that began in June, 1950, at the start of the Korean War. Births of second born children increased by 2% over 1950. Births of third children increased by 9%, and of fourth children by 13%. These increases continue a steady rise that has been going on since the end of World War II.

Hospital News—The U. S. P. H. S. Hospital at Fort Stanton, New Mexico, has stopped admitting patients; the Public Health Service announced June 1. The hospital, a tuberculosis sanatorium, will be closed as soon as patients now being treated there are transferred to other Service hospitals. The closure is necessary because of the curtailment of operating funds for the P. H. S. hospitals. In addition to the reduction in direct appropriations for the medical care of its beneficiaries, the Service will also lose reimbursements from the Veterans Administration for a daily average of 375 patients being cared for in general and tuberculosis hospitals. Some of the beds vacated through the withdrawal of veteran patients will be made available for tuberculosis patients. Patients from Fort Stanton will be cared for in the Public Health Service general hospitals at San Francisco, Seattle, New Orleans and Chicago, and the tuberculosis sanatorium in Brooklyn. Persons eligible for medical care by the Public Health Service include merchant seamen, Coast Guardsmen, and federal employees stricken in line of duty.

VETERANS ADMINISTRATION

Residencies in Pathology in Texas Hospital—The VA Hospital Houston, Texas, has vacancies for residents in pathology. The residency is approved for four years training in pathological anatomy and clinical pathology. The activities of the service are closely integrated with those of the departments of pathology, microbiology, and biochemistry of Baylor University College of Medicine. Stipends range from \$2,640 to \$3,300 per annum. Interested candidates should write to Dr. Lee D. Cady, Manager, Veterans Administration Hospital, Houston, Texas.

FOREIGN LETTERS

COLOMBIA

Yellow Fever—Dr Augusto Gast Galvis, director of the Carlos Finlay Instituto de Estudios Especiales of Bogotá, published an article on the epidemiology of yellow fever in the last four years in Colombia. The article appeared in *Revista de la Facultad de Medicina de Colombia* for December, 1952. The résumé of the work on which the article was based was reported by the author to the First Congress of Inter American Hygiene in Havana, Cuba, Sept 26 to Oct 1, 1952. The campaign against yellow fever in Colombia is carried on by the Carlos Finlay Institute. The institute is supported by the Ministry of Hygiene of Colombia, with the cooperation of the Pan American Sanitary Office of Washington. The work carried on in the country for several years by Colombian researchers, with the support of the national government, the Rockefeller Foundation and the Pan American Sanitary Office, has been of great value in the continental crusade against yellow fever. Drs R Franco, J Martinez Santamaría, and Gabriel Toro Villa in their research on the 1911 epidemics in the Muzo region described jungle yellow fever for the first time. Later further studies were carried on by Colombian researchers, mainly Drs R Serpa, L Patiño-Camargo, J Boshell Manrique, A Gast-Galvis, E Osorno Mesa, and M Roca-Garcia, alone or with the collaboration of distinguished foreign scientists mainly Drs A Peña Chavarria, G Bevier, J A Kerr, J C Bugher, H W Kumm, M Battes, and C R Anderson.

In Colombia, the last urban epidemics of yellow fever transmitted by *Aedes aegypti* occurred in Bucaramanga and Socorro in 1923 and 1929. In September and October, 1937, however, a small outbreak occurred in the Buenavista village (Caldas). It is difficult to ascertain whether *Aedes aegypti* or *Haemagogus spegazzinii* falco was the transmitting agent. The latter is abundant in the jungle near the village. From that year on, according to Dr Gast Galvis, only the rural or jungle type of yellow fever has occurred. Generally the disease is endemic, with small epidemic outbreaks. The endemic foci are relatively far from the coastal zones on both oceans. They occur in the mountainous zones of the interior of the country and, with preference for the hilly zones near the valleys, at altitudes between sea level and 1,600 m above sea level. The majority of well known foci are at altitudes of between 400 and 800 m above sea level. Single cases of yellow fever that occurred simultaneously in several regions of the country were revealed by viscerotomy studies of the liver of persons who died after an illness of 10 days' duration. In the regions of tropical jungle in which cases of yellow fever have occurred there are many apes. In other endemic foci in which the primitive jungle was destroyed and colonization established, simian apes are scarce but marsupials are abundant. The role of marsupials in the epidemiology of yellow fever has been proved by serologic studies. There are eight species of *Haemagogus* mosquitos in the country. It has been proved that only *Haemagogus spegazzinii* falco is a capable vector in nature. It is observed in all places in which yellow fever in human beings occurred. The data of the department of viscerotomy of the Carlos Finlay Institute showed, as revealed by examination of more than 34,000 specimens of human livers taken by viscerotomy, that yellow fever is more frequent in males than in females after the age of 10 years. This is particularly true in adults between the ages of 20 and 29 years. This seems to be natural, because the studies were made on cadavers of rural persons among whom only the men work in the jungle and consequently are more exposed than women to the disease. Between 1935 and 1951 the virus of yellow fever was identified from 26 different persons. The total number of cases of yellow fever, as proved by the results of studies of the liver between 1934 and 1952, was 525. Its frequency indicates that the disease occurs in

cycles with a periodic increase in the number of cases nearly every four or six years. The greatest and smallest numbers of cases were reported in 1947 and 1949, with 77 and 3 cases respectively. In the last four years, 53 proved cases of yellow fever have been reported from already known endemic regions. The disease has disappeared in human beings in places with small changes in the population where a constant vaccination program has been maintained. This has been the case in the Muzo municipality, in which no cases have occurred since 1948, whereas for 40 consecutive years before 1948 the disease appeared frequently.

Personal.—Dr G Pittaluga of the Instituto Carlos Finlay of Havana, Cuba, came to Bogotá in answer to the invitation of the Ministry of National Education the second week of December, 1952. He gave interesting lectures on "Diseases of Blood,"

"Diseases of the Reticuloendothelial System," and "Psychology of Women."—Dr R D Adams, neurologist of the Massachusetts General Hospital, visited Bogotá during the first two weeks of March in answer to an invitation of the Sociedad Colombiana de Medicina Interna. He gave a course of neurology that included theoretical lectures and practical sessions in hospitals.

LONDON

Irish Physicians' Disapproval of "White Paper"—An editorial in the Irish Medical Association's journal says that Irish physicians' disapproval of the "White Paper" on improved health services has been confirmed by the pronouncements of Dr James Ryan, Minister of Health. Headed, "Why We Disapprove," the editorial challenges Dr Ryan to explain how, with a bare 1,500 maternity beds at his disposal, he will fulfill the promise of skilled professional attendance to the mothers of 65,000 babies born annually in the republic. Quoting the 1,120 million dollar bill of the British health services, the editorial says: "Stage by stage in Britain, notwithstanding her centuries of experience in treasury work, there has been gross miscalculation. In this smaller, poorer country, can the taxpayers and ratepayers face with equanimity the prospect of similar miscalculation at a time when the purchasing power of the pound has been officially quoted in the *Dail* at \$1.25?"

Replacement of Dentures—The Denbighshire and Flintshire Executive Council has had problems in connection with claims for replacement of dentures. The council decided that a man who left his teeth in a tumbler on a dressing table, where they were seized and chewed by a dog that came through the window, had shown lack of care and would have to pay for a replacement. A man who said his denture fell into the fire while he was showing it to his wife and two persons who lost their false teeth while bathing will also have to pay. A woman whose denture broke in two while she was chewing an apple will get a free replacement but a man whose upper denture snapped while he was eating a meal and who tried to repair it himself will not.

Cystic Disease of Breast—Patey and Nurick of the Middlesex Hospital, reporting in the *British Medical Journal* (115 [Jan 3] 1953), have been investigating a series of cases of breast disease. Among 535 consecutive cases there were 76 cases of cystic disease, which were treated conservatively, 65 of these were followed for from 1 to 16 years. In only one is carcinoma known to have developed, and that in the opposite breast. Sixty four patients were treated by aspiration of the cyst and it was realized that this is not necessarily followed by the development of further cysts, and also that the tendency to cyst formation may disappear. It is suggested that, with simple precautions, conservative treatment by aspiration is an efficient and safe treatment for cystic disease of the breast.

Economy in Manpower in Hospitals.—The Ministry of Health has issued a memorandum stressing the need for economy in hospital administration costs and asks boards and committees to review their staffs and achieve reductions wherever possible. It also requires them to obtain approval before increasing the total number of staff members employed. The largest single item in hospital budgets is expenditure on the salaries and wages of staff, and, in an effort to prevent the annual cost of the National Health Service from exceeding the ceiling figure of 1,120 million dollars each year, the first attack on the individual items of expenditure is made on the staff. Speaking in the House of Commons, Miss Hornsby Smith, under secretary to the Ministry of Health, said that it was essential that progress should be made, in view of the disparity between the staffing of hospitals. It was aimed to get the staff where they were most needed. Recently there had been remarkable successes in reorganization of duties, in installation of more equipment and labor saving devices, and in discontinuance of unessential work.

This memorandum did not propose any target for the reduction of any medical or nursing staffs, nor did it impose control over individual appointments. Vacancies would be filled as an ordinary matter of routine. But increases in total number of staff members had to be justified. When one realized that 65% of the 630 million dollars spent on the hospital services alone were used for salaries and wages of hospital staffs, it was absurd to think of any review of the finance of the National Health Service if this vast field of expenditure was to be ignored. As far as manpower was concerned, in 1951 there were 15% more full time staff members and 33% more part-time staff members than in 1948. The Ministry must be satisfied that there was no waste of national manpower.

Figuring Radiological Work in Units.—Circular 94121/1/14, issued by the Ministry of Health on Dec 23, 1952, begins as follows: "This memorandum sets out a new method of recording the work undertaken in diagnostic X ray departments, which will come into use on 1st January, 1953." Many radiologists take strong objection to this, because again the Ministry of Health appears not to have sought cooperation and agreement with the profession. Three years ago the Nuffield Provincial Hospitals Trust looked into methods of estimating the work done in hospital radiodiagnostic departments. A subcommittee of the British Medical Association's Radiologists Group Committee joined with the trust in this inquiry, and it was decided to try out in 1952 the 'unit' system, which is the subject of the Ministry of Health edict. It was arranged that at the end of 1952 the Radiologists Group Committee should receive a report on how the system had worked, so that it could consider its worth and possible modifications. Instead, this circular was distributed on the unit system of estimating work done in diagnostic roentgenographic departments. Apparently the Ministry had taken this scheme from the Nuffield Trust, which had had it from the Radiologists Group Committee, and went into print with it without any consultation with the B. M. A. or its group committee. Quoting from a recent leading article on the Ministry's unilateralism, "This is an excellent example of how not to do things." Those responsible for the work of diagnostic roentgenographic departments will have every justification in refusing to obey the instruction in the circular.

In regard to the system itself, one unit is given for "gall bladder, Plain," 2 units for "urinary tract, plain," or 8 units for "Smith Petersen pin, insertion of and similar procedures." At the end of the year the units will be added up, and then calculated in terms of radiologists and their technical assistants, no doubt also in units. Apparently the system, in its trial period, has worked satisfactorily in some hospitals. But the criticisms against it by Dr J. W. Bull have great validity, and he speaks with the authority of the man doing the job. There is, he points out, all the difference between roentgenographing the spine of a slim adult and that of an obese, incontinent, and paraplegic patient lying in plaster. The time taken for a ventriculography (10 units) may vary from 10 minutes to two hours. In short, human beings just will not fit into a ministerial sliding scale. And in the background

to all this there is an element of distrust, it seems that the Ministry cannot trust hospital staffs to do their work with a sense of responsibility, and not to ask for more staff than is necessary. If medical men are instructed by the Ministry that roentgenographing "spine, more than one area" is worth only four units of work, there is a suggestion that, following the example of the bricklayer, they will end up by laying down their tools on the completion of the fourth unit. Is this really medicine in Britain today? It is to be hoped that the Ministry of Health will have second thoughts.

Lord Horder and the Health Service.—In a series of three Harben lectures at the Royal Institute of Public Health and Hygiene, Lord Horder has spoken critically of the National Health Service. In its creation two fundamental errors have been made. One was its overnight introduction, and the other was the attempt to do too much in too short a time. The medical profession had pleaded for progress by evolution, but in vain. Had the service been introduced in two steps and a reasonable pause allowed for consolidation, many of the defects of the present scheme might have been avoided. The first step should have been the regionalization of the hospitals, with grants in aid administered locally, and the second the addition of workers' dependents to the national health insurance service that had been in operation since 1911. The new service was based primarily on the hospital and not on the family physician. This was the negation of adequate medical care, which was an integration of the family physician, the hospital, and the consultant. Such an integration to be effective could be attained only by development within the profession, it could not be dictated by the state. The general practitioner was finding his time increasingly taken up with other problems. Even after four years of the service, health centers were almost non-existent, and there was less postgraduate instruction. More serious still was the fact that the relationship between physician and patient, which was the essential of successful medical care, was grossly interrupted. The government had been unable to do anything about the fantastic disparity between budget and expenditure, and the National Health Service was becoming financially insecure.

Lord Horder was equally outspoken in his criticism of social medicine as a specialty. "Humanist though I am, and wholehearted supporter of the thesis that medicine should be made 100 per cent available to the people, I have never been quite convinced that the notion underlying the new branch of it which has been called 'social medicine' has justified itself." The claims made for social medicine seem to fall well within the orbit of general medicine. The importance of knowing all about the patient's social, domestic, and employment background had always been recognized by sound clinicians, but to make such inquiries a special branch of medicine seemed redundant.

NORWAY

Treatment of Speech Defects.—The Granhaug School for combating defects of speech was founded in 1919 by Hans Eng, who remained its director till his death in 1939. It is a boarding school with accommodation for 21 pupils and a few day boarders. The age limit for pupils is 7 to 25 years, and the demand for admission has exceeded the supply to such an extent that applicants have had to wait five to six years. It was therefore obvious that this national school must be enlarged, and in 1946 a site was acquired by the state for the erection of a new school. Temporary quarters have meanwhile been provided for some 30 pupils, and in the autumn of 1952 a boarding house was acquired for the accommodation of 36 pupils classified in three age groups. Some 100 pupils can now be accommodated by this school every year for courses of training lasting several months. Meanwhile the original Granhaug School continues to deal with speech defects associated with cleft palate, general disturbances of speech, deaf mutism, delayed development of speech, word blindness, and functional disturbances of speech. Attached to the school are specialists in plastic surgery, dentists, and ear, nose, and throat specialists. Approximately half of the pupils

suffer from defects of speech due to cleft palate, and most of them require at least a year's training, in some cases up to two years

In such a vast and thinly populated country as Norway the treatment of speech defects cannot be limited to a few central schools and it would be absurd to send a lisping child from the North to the South of Norway for treatment. Schools like Granhaug must therefore be devoted to more serious cases, cleft palate cases for example, while an elastic system must be devised for local or ambulatory treatment. In recognition of this principle a state-controlled scheme was devised in 1946 for the training of speech pedagogues or logopeds. Norway is one of the few countries in the world with a team of fully trained logopeds who must present evidence of a comparatively high scholastic attainment in order to qualify for training as a logoped. The one year training period is carried out partly at the Granhaug School and partly at the University of Oslo. Ultimately a training of two years will be necessary. More than two score logopeds have already been trained, and nearly all of them also hold certificates as school teachers. Ultimately every administrative district in Norway will have its own logoped trained to distinguish between the various defects of speech, to give treatment in suitable cases, or to recommend the patient for treatment in a special school. He will be able to help adults who because of laryngectomy or some other handicap have to train themselves again to speak, and who have hitherto been much at the mercy of amateurs at home or have had to go abroad for help. Norwegian logopeds have already formed their own professional body known as the Norwegian Logoped Association to promote the welfare of its members and the patients in their care. The address of this body is Postboks 210, Lysaker, Norway.

BCG Studies.—At the Glitre Sanatorium, under the charge of Dr Rolv Høyer Dahl, there are already ample opportunities for studying the behavior of pulmonary tuberculosis in persons previously vaccinated with BCG, for BCG vaccination has been in force in Norway for many years. Between Jan 1, 1948, and April 1, 1952, 64 of the patients resident in this sanatorium had been vaccinated with BCG. All the 64, who constituted approximately 5% of all the patients treated during this period, were adults, the oldest being nearly 50 years old. The disease was of the destructive type in 52 of these cases and of the nondestructive type in 12. Most of the patients had been vaccinated between the ages of 15 and 30 several years before admission to the sanatorium. Among the 64 were 6 nurses, who had been exposed to infection after vaccination and had been kept under close tuberculin supervision.

In his comments on these cases in the organ of the Norwegian Medical Association, *Tidsskrift for den norske lægeforening* (110 [Jan 1] 1953), Dr Sigmund Bøyum draws special attention to the patients who had remained tuberculin-negative after several BCG vaccinations. Failure to respond to BCG with a positive tuberculin reaction is, in his opinion, by no means a sign indicative of good resistance to the tubercle bacillus, as is believed in certain quarters. Nearly all the patients who had remained tuberculin negative after BCG vaccination and in whom pulmonary tuberculosis subsequently developed belonged to families in which there was much tuberculosis. It seems to Dr Bøyum that successive BCG vaccinations at short intervals may defeat their object, for a faint response on the first occasion, with an infiltration of only 1 or 2 mm., may block the spread of BCG in the organism when vaccination is repeated after a short interval.

Another BCG study comes from the central BCG laboratory in Bergen under the charge of Dr J. Bøe. He is concerned over the deterioration of BCG under the influence of sunlight, a problem now being investigated in many BCG laboratories. While some authorities believe that variations in the potency of BCG depend chiefly on the influence of sunlight, Dr Bøe does not go so far and he believes that the potency of different samples of BCG will continue to vary, however effective the precautions taken against sunlight may be. He does not follow the example of the Danish and Swedish BCG laboratories which now send out BCG in ampuls colored red on the assumption that red light is the least harm-

ful to BCG. But in recent months he has enclosed in each consignment of BCG a short notice to the effect that it should be kept in the dark and preferably cool. The vaccine must not be left to stand in the window nor in a syringe for any length of time.

Death of Prof. Johan Holst.—The death of Prof. Johan Holst early in 1953 came as a great surprise to his many friends, since this alert, athletic, 60 year-old surgeon passed away only a week or two after he had been at work. He came of medical stock, and his father, Peter F. Holst, was professor of medicine at the University of Oslo. Quite early in his career, Johan Holst undertook special studies of the diseases of the thyroid gland, and it was his investigation of the pathogenesis of Graves' disease that earned him the degree of doctor of medicine in 1924. Thereafter his activities were, for the most part, surgical, and his surgery of the thorax, with special reference to pulmonary tuberculosis, earned him an international reputation. He was only 38 years old when appointed professor of surgery at the University of Oslo and was put in charge of the surgical department A of the Rikshospital. His wartime activities date as far back as to 1918, when as a young physician he took part in Finland's Liberation War. When Finland was again at war in 1939, Holst organized the Norwegian Ambulance Service sent to Finland. When war broke out in Norway in 1940, Holst was at once put in charge of the Norwegian Army Medical Service, and he remained at the head of it till the end of the war. He escaped from Norway during the war under dramatic circumstances and thenceforth worked abroad with the Norwegian forces serving in England and elsewhere. The honorary degree conferred on him by the University of Glasgow was one of the many tokens of the high esteem in which he was held abroad as well as at home.

SWITZERLAND

Medical Insurance.—On Dec 31, 1950, in Switzerland 3,083,108 persons were insured by a recognized sick fund. Included were 1,267,792 men, 1,179,970 women, and 635,346 children. This represented 65.6% of the total population of the country and an increase of 1.1% (89,537 persons) compared with 1949. In certain cantons, where the insurance is obligatory, there are 85 to 99% of persons insured. In the cantons where the insurance is not obligatory, there are 36 to 48% insured persons. Most of the insured persons benefit from the provisions for medical and pharmaceutical expenses only, or in combination with a daily indemnity. In 1949 the receipts of the recognized sick funds involved 261 million francs, which were distributed as follows: contribution of the members 205 million, payment of the public powers 38 million and contributions of the employers 5,800,000 francs. The federal subsidies reached about 28 million francs, including subsidies to the tuberculosis insurance. The expenses reached 246 million francs and were broken down as follows: daily indemnities 58 million, medical and pharmaceutical expenses 142 million, accouchement 9 million, administration expenses 24,500,000 and indemnity at death 1,224,000.

Control of Tuberculosis.—In 1902 the central commission for the control of tuberculosis was created in Switzerland. This commission developed the idea of constructing the first popular sanatoriums. Chiefly under the presidency of Dr E. Bachmann, from 1924 to 1948, the Swiss Association for the Control of Tuberculosis endeavored to prepare federal legislation on tuberculosis, it became the connecting link between the confederation and the cantons, and it accomplished much to the satisfaction of everybody. Recently, the association celebrated its 50th anniversary, in the presence of civil and medical authorities. The minister of public health, Mr Etter, declared that 50 years ago 15% of the total number of deaths was attributed to tuberculosis, while in 1950 this had been reduced to 3.5%. Prof. E. Bernard, from Paris, general secretary of the International Union Against Tuberculosis, spoke in praise of this fight against tuberculosis, especially the creation of sanatoriums and preventorium.

CORRESPONDENCE

HEPARIN AND ANGINA PECTORIS

To the Editor—Dr Hyman Engelberg discussed our article on heparin and angina and made several statements that require amplification (*JAMA* 152:474 [May 30] 1953). His statement that "nearly all" of our patients had had angina for five years is inaccurate. In our article, we stated that this was true of the "majority" (over 50%). His statement that angina of this duration would be associated with "probably markedly calcific vessels" must remain a surmise, in the absence of anatomic confirmation. We are surprised that he considers angina of this duration a disqualifying feature, since he reported on 27 patients (*Am J Med Sci* 224:487, 1952), 12 of whom had had angina for four or more years. He reported improvement with heparin in 7 (58%) of these 12 patients and in 10 (66%) of the remaining 15 patients. The difference has no statistical validity and does not support the concept that this duration of angina is a critical factor.

Dr Engelberg makes the unqualified generalization that domiciliary patients are resistant to therapy because their security is threatened by any considerable improvement in symptoms. This has no basis in fact and is contrary to our personal experience with the medical program for domiciliary patients at this center. It ignores the fact that 22 (65%) of our 34 patients improved with intravenous therapy (heparin and sodium chloride solution placebo). This is almost identical to Dr Engelberg's report of improvement, with heparin, in 17 (63%) of 27 patients. Dr Engelberg attributes this improvement solely to heparin, while we, utilizing the double blind control, found that sodium chloride solution placebos were equally as effective as heparin. Dr Engelberg suggests that heparin has a gradual delayed response and a prolonged carry-over when used in the treatment of angina pectoris. This theory, to our knowledge, has not been confirmed by any other investigator. It is not in accord with the original findings of Graham and co-workers (*Circulation* 4:666, 1951), who first reported beneficial effects of heparin in angina. They found that heparin produced relief of angina soon after heparin therapy was begun, usually after the first few injections, and that relief persisted for several days after a single injection. All of seven patients whose severe angina had been relieved by heparin injections complained of return of anginal symptoms when sodium chloride solution placebos were injected instead of heparin.

It is of interest that five other groups of investigators found, as we did, that heparin has no significant effect on the symptomatic relief of angina (Russek, Urbach, and Doerner and Miller, Zinn, and Griffith in 1952 and Grüner and co-workers, Rinzler and co-workers, and Port and co-workers in 1953). Heparin therapy was given for 6 weeks by Miller, Zinn, and Griffith, for 7 to 11 weeks by Grüner and co-workers, for 8 to 11 weeks by Rinzler and co-workers, and for two separate 10 week periods by Port and co-workers. In each instance, placebo therapy was given for about the same length of time as heparin therapy. None of the investigators detected a gradual response to heparin or a prolonged carry-over. We agree with Dr Engelberg that "conscious and unconscious emotional factors" are extremely important in evaluating the response of angina to any drug. For this reason, we advocate the use of the double blind method so that enthusiasm or lack of it, on the part of the physician as well as the patient, will be properly controlled.

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CHEMICALLY TREATED FLOUR

To the Editor—In *THE JOURNAL* (152:353 [May 23] 1953), there was a note concerning the report of a case in the *Lancet* (1:577, 1953) in which eczema, mental depression, and anorexia "associated with the ingestion of chemically treated flour" developed. The authors concluded, after presenting their findings, that the patient showed an allergic response to wheat flour treated with nitrogen trichloride or chlorine dioxide. In addition, they asked whether "this is a rare case of allergy or merely the first recognition of a common disorder." In 1949, I published a paper on the "Species Specificity of Agene Toxicity" in the *Journal of Applied Physiology* (p. 802) and reported that the ingestion over a period of time of over one half of the initial body weight of bread and cookies made with wheat flour that had been very heavily treated with nitrogen trichloride (Agene) had no ill effect on three patients with epilepsy. No demonstrable changes could be detected in the electroencephalogram, various blood, urinary, and spinal fluid biochemical determinations, and psychological, psychiatric, nutritional or neurological status. The patients gained much weight and were very happy in the hospital. No skin disorders were observed. These same patients were fed a control diet before and after the experimental diet; the control diet was identical to the experimental diet except that it included unbleached flour. Several months after the experiment, the patients expressed a desire for the "cookies" they had previously been fed. Other investigators have also reported no demonstrable toxic effects from the ingestion of flour treated with nitrogen trichloride. In my experiments, identical control and experimental flour was tested on dogs, cats, and monkeys. It was found that after one feeding of the experimental diet severe signs of toxicity developed in the dogs within 18 hours, (tremors, convulsions, and typical electroencephalogram records). If allowed to feed again, they died in status epilepticus within 24 hours. This discrepancy in toxicity has been explained recently by Reiner and his co-workers. Apparently the nitrogen trichloride acts on the amino acid methionine found in wheat flour to produce methionine sulfoximine. This substance when accumulated, produces toxic symptoms. It is not readily excreted via the kidney in dogs, but man has no difficulty in eliminating it. This explains the difference in species response. On the basis of these facts, I feel the report by the British authors is not one of a new syndrome but one of a rare allergy. I want to indicate, however, that my experiments were limited in that only flour treated with nitrogen trichloride was used.

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UNUSUAL VIRUS FROM POLIOMYELITIC SPINAL CORD

To the Editor—We have recently isolated, from the spinal cord of a child with typical clinical and histological poliomyelitis, a filterable agent (Kentucky virus) that is not related immunologically to the three standard types of poliomyelitis. Human immune globulin neutralizes Kentucky virus in high titer. To date, all positive results with this virus have been achieved only in tissue culture. The Kentucky virus was obtained from the spinal cord of a child 18 days after onset of illness, a time at which the recovery of poliomyelitis virus is difficult because of the very small amounts of virus then present. The thalamus of each of two monkeys was inoculated with the human spinal cord suspension; both animals remained well and free of lesions. The virus was probably present in very low titer since only one of three attempts yielded the

agent producing cytopathology After passage in vitro, the titer of the virus, revealed by fibroblastic degeneration, is 10^3 to 10^4 it is destroyed in 30 minutes at 56 C, is ether resistant, and has not affected suckling or adult mice, guinea pigs, hamsters or three monkeys

Although one virus type usually dominates during a poliomyelitis epidemic, the other types have been found at the same time in other patients In the 1952 Louisville poliomyelitis epidemic during which the Kentucky virus was isolated, the attack rate was 149 per 100,000 persons and the poliomyelitis virus strain recovered was type 1 One possible although not solitary explanation for the presence of Kentucky virus in the spinal cord of a patient who died of poliomyelitis is a causal rather than a casual relationship If other laboratories recover immunologically related viruses from the spinal cord of poliomyelitis patients, the existence in humans of a hitherto unrecognized immunologic type of poliomyelitis virus important in epidemics and in active immunization against the disease would require assessment We believe it advisable to make these findings known at this time so that full opportunity is taken in the ensuing poliomyelitis season to inspect spinal cord material from persons who die of the disease

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LUMBAR SYMPATHETIC BLOCKS AND ANTICOAGULANT THERAPY

To the Editor—In THE JOURNAL (May 30, 1953) there was an article entitled "Danger of Lumbar Sympathetic Blocks During Anticoagulant Therapy" by Robert P Hohf, William S Dye, and Ormand C Julian The authors reported retroperitoneal hemorrhage following paravertebral lumbar sympathetic block during anticoagulant therapy in three patients with peripheral vasospasm In their comment they state, "It is apparent that there is no way to avoid this catastrophe by modifying the technique by which a block is performed or by regulating the therapeutic dose of anticoagulants It has been shown that adequate lumbar sympathetic block may be obtained by the injection of dilute solutions of local anesthetics into the epidural space (Ruben, J E *Anesth & Analg* 29 296, 1950) This space may be entered for the purpose by the caudal or the interspinous route A flexible needle (Hingson, R A., and Southworth, J L *Mil Surgeon* 100 474, 1947) or a plastic or nylon catheter (Ruben, J E *Ann Surg* 131 194, 1950) may be placed in the epidural space through the sacral hiatus for continuous lumbar sympathetic block by this method The arrangement for continuous block prior to the induction of anticoagulant therapy has proved perfectly safe and very satisfactory for more than five years The benefit of lumbar sympathetic block need not be denied the patient with vasospasm who is receiving anticoagulants

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SURGEON'S HELPER

To the Editor—Any instrument, particularly a simple and inexpensive one that aids or expedites a surgical procedure is worthy of note The surgeon's helper is such an instrument, it might even be called a seeker This little instrument contains a powerful patented magnet not so large as a conventional needle holder It is entirely self-contained and has no batteries or connections It withstands repeated boiling and autoclaving without apparent loss of magnetic power The instrument consists of a simple cartridge measuring 7 mm by

6 cm with the magnetic button on one end A milled handle 15 cm long is hinged to the cartridge to permit the greatest flexibility in gaining access to remote places The milled handle also provides a good grip

The surgeon's helper has a broad scope of usefulness When looking for a broken needle, a needle eye, metal clips, or small pieces of steel wire, all one must do is pass the magnet through the surgical field or drapes, the instrument immediately picks up the metal objects It saves a great deal of time and patience particularly when one is looking for broken needles This little magnet may be purchased at any automotive supply store for less than a dollar It is also available in larger sizes

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SNAKE VENOM POISONING

To the Editor—In their article "Treatment of Snake Venom Poisoning with Cortisone and Corticotropin" (*J A M A* 152 236 [May 16] 1953), Hoback and Green reported that in two cases the bite was from a 'copperhead moccasin' To avoid confusion, I believe this should be clarified The snake involved undoubtedly was either a copperhead (*Agkistrodon mokasen*) or a water moccasin (*Agkistrodon piscivorus*) To my knowledge there is no such creature as a 'copperhead moccasin' Both the moccasin (water or cottonmouth) and copperhead belong to the family Viperidae (pit vipers)

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EFOCAINE

To the Editor—Many favorable and a few unfavorable reports regarding the use of Efoaine in nerve block anesthesia have been published Efoaine is a solution containing 1% procaine, 0.25% procaine hydrochloride, and 5% butyl-p-aminobenzoate in a solvent composed of 2% polyethylene glycol 300, 78% propylene glycol, and water We wish to state that, although recent reports by ourselves and others have been favorable regarding the use of Efoaine for long lasting local anesthesia, late postoperative examination of patients who have received nerve block shows a not infrequent incidence of pain at the site of injection and, occasionally, in the nerve distribution Because of these complications, we have discontinued the use of Efoaine because we believe that in its present form, it is an unsatisfactory medicament for this purpose

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MILKER'S NODULES

To the Editor—I noted with interest the editorial on milker's nodules in the May 2, 1953, issue of THE JOURNAL While there have been very few cases in the country, there was at least one in New England I discussed that case and showed a very good photograph of the nodules when I presented a paper, "Criteria for Diagnosis of Occupational Skin Diseases" in Ohio The paper was published later (*Ohio State M J* 36 937 [Sept] 1940) I think it was excellent that the disease was described in an editorial, because I imagine that more cases have been seen than have been reported in the literature

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MEDICAL MOTION PICTURES

Subtotal Gastrectomy for Duodenal Ulcer Perforating Into the Pancreas 16 mm color sound showing time 29 minutes Prepared by Joel W Baker MD the Mason Clinic Seattle Produced in 1951 by and procurable on loan from Davis & Geck Inc 57 Willoughby St. Brooklyn 1

The author has illustrated his technique of doing a subtotal gastrectomy for perforated ulcer of the duodenum without removing the ulcer He has demonstrated a posterior Hofmeister-Polya type of resection He isolated the duodenum first and cut across the duodenum, leaving the ulcer, which had perforated into the pancreas The duodenal stump was closed with interrupted nonabsorbable surgical sutures and the stump covered with omentum Before incising the intestine, the author made an opening in the mesocolon The gastrocolic and gastro hepatic omentum were then ligated and clamps applied for removal of the stomach after the Hofmeister technique The anastomosis between the stomach and the jejunum is done with interrupted absorbable surgical sutures on the inside and interrupted nonabsorbable surgical sutures on the outside A very short loop of proximal jejunum is left, measuring not more than 2 in The author removes at least three fourths of the stomach Aseptic technique is carried out carefully The author states that whenever possible he prefers to remove the ulcer, but in 70 of 270 cases with duodenal ulcer he has left the ulcer in situ, performing an operation as illustrated He reports no leaks of the duodenal stump and no mortality in these 70 cases At the end of the operation the peritoneal cavity was irrigated with saline, a procedure that might be criticized by some surgeons as possibly spreading contaminated material The surgical technique demonstrated is good, and proper precautions are taken throughout the operation The photography is excellent This film is recommended for young surgeons, including residents

Regional Analgesia: 16 mm color sound showing time 34 minutes Prepared by Daniel C. Moore MD Seattle and John J Bonica MD Tacoma Wash Produced in 1952 by Rarig Productions Seattle. Procurable through representatives of Winthrop-Stearns Inc 1450 Broadway New York 18

This film demonstrates the authors' technique for regional anesthesia pertaining to blockade of the stellate ganglion, lumbar sympathetic chain, brachial plexus, and sciatic and femoral nerves, utilizing tetracaine (Pontocaine) hydrochloride solution Anatomic review of each block is well demonstrated by means of unusually clear drawings, animation discussion, and demonstration on the live subject Discussion includes indications, procedure, effects and extent of analgesia, and complications It is felt that aseptic preparation of the field should be stressed and demonstrated in its proper sequence At one point in the film, the gloved hand was seen to touch an obviously unprepared area and then to return to the operative field Listing of complications is an excellent teaching aspect of the film, but no visible evidence was presented during the procedures that equipment for treating such complications was actually ready and available The animation and captions are clear and complete, the narration is clear and concise, and the photography and drawings are excellent This film is recommended for surgeons, anesthesiologists, neurologists, and medical students

NEW FILM ADDED TO A M A MOTION PICTURE LIBRARY

Blood Streams in the Basilar Artery 16 mm color silent showing time 9 minutes Demonstrated by D A McDonald and J M Potter Department of Physiology St Bartholomew's Hospital Medical College London. Produced by the Wellcome Film Unit London in 1949 and sponsored by Burroughs Wellcome & Co (Wellcome Foundation) London Procurable on loan (service charge \$1 00) from Committee on Medical Motion Pictures American Medical Association 535 N Dearborn St. Chicago 10

This short, concise film shows in striking form the manner in which blood flows through the basilar artery of a rabbit, as revealed by the injection of a dye with and without experimental interruption of the flow The special situation treated

is that in which two arteries of equal size (right and left vertebral arteries) unite to form a single medium artery (the basilar) The anatomic situation is made clear by excellent diagrams in color, followed by brief sequences showing the dissection, cannulation and other preparations Because of the fortunate choice of experimental animal, the transparency of the artery permits one to see the rapid movement of the colored fluid, the separateness of streams from the right and left vertebral arteries, and the reversals of direction resulting from occlusion of one artery The dissection shown is too difficult as a routine procedure in most physiology courses In this film, it is so deftly done and so well shown that it affords students an opportunity to see things that they would probably never otherwise observe The color photography is excellent This and several other circumstances combine to give an appreciation of depth, which is helpful, and the film should be of considerable teaching value for medical classes in physiology

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

ADDITIONAL HOSPITALS REGISTERED

The following hospitals were registered by the Council on Medical Education and Hospitals of the American Medical Association at its meeting in New York City, May 29, 1953

Clay County Hospital Ashland Ala	Riverside Hospital New York, N Y
Austin Lewis General Hospital Birmingham Ala	Veterans Admin Hospital Durham N C
Veterans Admin Hospital Birmingham Ala	Moses H Cone Memorial Hospital, Greensboro N C
Blount Memorial Hospital Oneonta Ala	Stanley Community Hospital, Stanley N D
Lee County Hospital Opelika Ala	Adams County Hospital, West Union Ohio
Hoemako Cooperative Hospital Casa Grande Ariz	Stillwell Municipal Hospital, Stillwell Okla
Gurdon Municipal Hospital Gurdon Ark	Fairlawn Hospital, Portland Ore
Springdale Memorial Hospital Springdale Ark	Hillcrest Hospital Portland Ore
Levine Hospital Hayward Calif	Doylestown Emergency Hospital Doylestown Pa
Modesto City Hospital Modesto Calif	North Hills Sanatorium Glenside Pa
Hoag Memorial Hospital—Presbyterian Newport Beach Calif	Meyersdale Community Hospital, Meyersdale Pa
U S Air Force Hospital Parks Air Force Base, Calif	Deuel County Memorial Hospital, Clear Lake S D
Merced Hospital Redding Calif	Freeman Community Hospital, Freeman S D
Roseville District Hospital Roseville Calif	Gettysburg Memorial Hospital Gettysburg S D
Golden Hill Hospital San Diego Calif	Bradley County Memorial Hospital Cleveland Tenn
Veterans Admin Hospital West Haven Conn	Unicoi County Memorial Hospital Erwin Tenn
St Joseph's Hospital Augusta Ga	Anson General Hospital Anson Texas
Rockmart Aragon Hospital Rockmart Ga	Medical and Surgical Clinic Hospital Fort Worth Texas
Screven County Hospital Sylvania Ga	Burrow and McRoberts Clinic and Hosp Killean Texas
Lake Shore Convalescent Home Chicago Ill	Max Mixson Memorial Clinic Hosp., Kirbyville Texas
Allen County Hospital Iola Kan	Galveston County Memorial Hospital La Marque Texas
Community Memorial Hospital Virgie Ky	Plainview Medical Center Plainview Texas
Southeast Louisiana Hospital Mandeville La	Rockwall Medical Clinic-Hosp., Rockwall Texas
Bangor City Hospital Bangor Maine	Surgical and Obstetrical Hospital, San Antonio Texas
Joseph P Kennedy Jr Memorial Hosp Boston Mass	San Juan Maternity Hospital San Juan Texas
Holyoke Soldiers Home and Hospital Holyoke Mass	Battenfield Hospital Clinic Snyder Texas
Oakwood Hospital Dearborn Mich	Holton-Johnston Hospital Terrell, Texas
Sinal Hospital Detroit Mich	Patterson Memorial Hospital, Troup Texas
Community Hospital Browns Valley Minn	Utah Permanente Hospital Draper Utah
Mesaba Clinic Hospital Chisholm Minn	City County Hospital Price Utah
Washington County General Hospital Greenville Miss	Lutheran Minor Hosp for Chronic Disease Puyallup Wash
Daniels Memorial Hospital Seabey Mont	Eye and Ear Hospital Wenatchee Wash
Ford Memorial Hospital Central City Neb	Memorial Hospital Boscobel, Wis
Crotched Mountain Rehabilitation Center Greenfield N H	Hudson Memorial Hospital, Hudson Wis
Eunice Hospital Eunice N Mex	Community Memorial Hospital Oconto Falls Wis
U S Air Force Hospital Geneva N Y	Niobrara Memorial Hospital Luck Wyo
Liberty Loomis Hospital Liberty N Y	

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A M A Arch Neurology and Psychiatry, Chicago

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 External Otitis H. E. Branca—p 310
 Extralaryngeal Approach to Arytenoidectomy in Bilateral Paralysis of Abductors of Larynx M. Ćurković and M. Horvatsky—p 328

Sympathectomy for Ménière's Disease, Tinnitus, and Nerve Deafness.—According to Passe, neurovascular disturbances, the result of an underlying autonomic imbalance, could be the etiological factor in a large number of cases of Ménière's disease, tinnitus, and nerve deafness. It was this concept that prompted the author to use sympathectomy as an approach to the treatment of these conditions. Stellate ganglion block with 1% procaine hydrochloride without epinephrine was used as a diagnostic test in the selection of cases. Those patients who before stellate ganglion block showed a disproportionate loss of perception of speech intelligibility compared with the pure tone losses showed an equally disproportionate gain in speech discrimination compared with the pure tone audiometric gain after stellate ganglion block. This preoperative finding has extreme diagnostic and prognostic significance. Of 91 patients with Ménière's disease, 45 were treated by removal of the stellate ganglion using the standard anterior approach but also stripping the vertebral artery and 46 were subjected to upper dorsal sympathectomy according to Smithwick's technique, with the modification that only the second and third ganglia were decentral-

ized. In the group in which the stellate ganglion was resected, vertigo was completely relieved in 28 patients, improved in 16, and unchanged in 1, tinnitus was completely relieved in 11, reduced in 23, and unchanged in 11, hearing was improved in 32 with audiometric gains of 15 db or more in 16, while it was unchanged in 13. In the group undergoing upper dorsal sympathectomy, vertigo was completely relieved in 28 patients and improved in 16, and results were not known in 2. Tinnitus was completely relieved in 9, improved in 19 and unchanged in 16, hearing was improved in 38, with audiometric gains of 15 db and over in 10, while it was unchanged in 6 and results were not known in 2. In relieving the tinnitus and improving the hearing, stellectomy appears to give slightly better results. Patients with stellectomy have been observed for five years and those with upper dorsal sympathectomy for two years. Seventy patients with tinnitus that had no local organic cause were also studied by means of procaine hydrochloride block, 30 were subjected to removal of the stellate ganglion and 40 to upper dorsal sympathectomy. In the first group, tinnitus was completely relieved in 5 patients and reduced in 10, it returned to preoperative levels in 15. In the second group, tinnitus was completely relieved in 6 patients, reduced in 21, and returned to preoperative levels in 9. 4 patients were lost to observation. Thus the operation has been a complete success in 17%, worth while in 33%, and a failure in 50% of the stellectomies, but a complete success in 15%, worth while in 50%, and a failure in 35% of the upper dorsal sympathectomies. Of 60 patients with "idiopathic perceptive deafness" selected according to their response to procaine hydrochloride block, 19 were subjected to removal of the stellate ganglion and 41 to upper dorsal sympathectomy. In the first group hearing was improved in 16 patients, with a gain of 10 db or more in 13, and remained stationary in 3. In the second group hearing was improved in 32 patients, with a gain of 10 db or more in 24, and remained stationary in 5, results were not known in 4. As a result of his experience the author states that at the present time sympathectomy does seem to be the ideal treatment in a large group of cases of Ménière's disease. The few patients with nerve deafness who respond to procaine hydrochloride block should have the sympathectomy, for in those the results are gratifying and there is no other treatment for this whole group.

American Journal of Medicine, New York

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- Prolonged Treatment of Rheumatoid Arthritis with Cortisone and Corticotropin M. H. Levin, J. B. Rivo, W. Scott and others—p 265
 *Effect of Cortisone and ACTH on Protracted Phase of Rheumatic Carditis in Children L. M. Taran, G. A. Gulotta, N. Szilagyi and others—p 275
 Chloramphenicol and Terramycin in Treatment of Pneumonic Plague F. R. McCrumb Jr, S. Mercier, J. Robic and others—p 284
 Blood Stream Invasion by Newcastle Disease Virus Associated with Hemolytic Anemia and Encephalopathy Report of Three Cases S. E. Moolten, E. Clark, B. F. Glasser and others—p 294
 *ACTH in Reiter's Syndrome Four Cases with Review of Literature E. Larson and S. J. Zoeckler—p 307
 Pheochromocytoma Its Relationship to Neurocutaneous Syndromes A. S. Glushien, M. M. Mansuy and D. S. Littman—p 318
 Congenital Familial Testicular Deficiency A. R. Sohval and L. J. Soffer—p 328
 Hemophilia A J. Quick—p 349

Cortisone and Corticotropin in Protracted Rheumatic Carditis.—Cortisone and corticotropin were given to 16 children between the ages of 7 and 16 years with acute protracted rheumatic carditis. All of these patients had moderate to pronounced structural damage of the heart and had had active rheumatic fever for four months to four years before the institution of hormone therapy. The duration of treatment varied from patient to patient, depending on the extent of improvement or the onset of untoward effects. Ten of the 16 patients were treated with cortisone during the first four weeks in

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Titles marked with an asterisk (*) are abstracted.

doses of 200 to 300 mg daily for three days, 150 mg daily for the next three days, 100 mg daily for 15 days, 75 mg daily for two days, 50 mg daily for two days, 25 mg daily for two days, and 10 mg for one day. This was followed by a three week interval of supportive therapy only. This period was followed by a course of corticotropin (ACTH) therapy in doses of 30 mg twice daily for the first three days, 25 mg twice daily for the next three days, 20 mg twice daily for 15 days, 15 mg twice daily for two days, 10 mg twice daily for two days, 5 mg twice daily for two days, and 5 mg daily for one day. After an interval of three weeks, the regimen was repeated. Of the 16 patients, 7 showed mild improvement as manifested by an increase in appetite and a definite sense of well being, although some of the rheumatic symptoms remained unchanged, 6 patients showed moderate clinical improvement, with pronounced increase in appetite, gain in weight, lowering of the temperature, and disappearance of all symptoms. Three patients showed dramatic improvement within 48 hours after the beginning of therapy, there was disappearance of all rheumatic symptoms, drop in pulse rate and temperature, fall in erythrocyte sedimentation rate, and pronounced euphoria. Clinical improvement thus was obtained in all patients, and exudative phenomena were readily suppressed during hormone therapy. All 16 patients continued to show clinical and laboratory evidence of rheumatic carditis when therapy was discontinued. None of the authors' patients showed regression in clinical evidence of endocarditis or cardiac hypertrophy. Many of the patients showed some untoward effects. Ten patients showed one or several signs of Cushing's syndrome. Nine patients showed definite evidence of psychological effects, euphoria, or depression. In three patients pronounced syncope occurred following parenteral administration of cortisone acetate. Whether this form of treatment significantly affects the course of rheumatic disease in long standing cases remains to be proved. Further exploration in dosage schedule and method of administration may provide a more definite answer to this problem.

Corticotropin in Reiter's Syndrome—The occurrence of Reiter's syndrome, a self limited clinical triad composed of non-specific urethritis, purulent conjunctivitis, and acute arthritis in four men between the ages of 24 and 43 is reported. Although no definite cause has been established, the pleuro pneumonia-like organisms (L-organisms) that were cultivated from the urethra in one of the authors' four patients, as well as in many patients reported on by other workers, seem to bear a more than casual relationship to Reiter's syndrome. The classical triad was associated with weight loss and muscular atrophy in all four patients who were treated initially with bed rest, salicylates, and physiotherapy. The first patient received penicillin, streptomycin, aureomycin and antihistamines, and typhoid paratyphoid vaccine intravenously, the second penicillin, sulfadiazine, streptomycin, chloramphenicol (Chloromycetin) and oxytetracycline (Terramycin), the third oxytetracycline, and the fourth patient penicillin and streptomycin, which had no apparent effect on the course of the disease. All four demonstrated prompt and dramatic remissions during treatment with corticotropin (ACTH) in doses of 20 to 30 mg every six hours, which permitted ambulation and vigorous physical therapy. In addition, a sense of increased well-being, increased appetite, and associated weight gain were noted. All patients showed at least temporary relapses following therapy, and two required additional treatment with corticotropin. The authors believe that the use of corticotropin contributed greatly to the prevention of joint contractures in these patients and to their ultimate excellent outcome. As a result of their experience in these four patients and of observations collected from the literature, the authors state that the shortening of illness and the prevention of debility and joint contractures are the primary objectives of treatment of this self-limited syndrome and may be accomplished by the use of a nutritious diet, vitamin supplements, and a vigorous physical therapy regimen. Corticotropin, as an adjuvant, has a definite place in the over all management of Reiter's syndrome.

American Journal of Psychiatry, New York

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*Deterioration in Dementia Paralytica V A Kral and H Dörken Jr—p 684
Special Psychiatric Problems of the Paraplegic Report of Case of Attempted Suicide by Paraplegic J Petrus and A B Balaban—p 693
Effect of Electroshock on 'Normal' Person Under Recent Stress An Experiment Elucidating Influence of Electroshock on Defensive Operations of Ego L Alexander—p 696
Differential Indications for Use of Glutamic Acid E D Kane—p 699
Sedation of Alcoholic Patients with Nonsedative Drugs Preliminary Report J Thimann—p 701

Deterioration in Dementia Paralytica—Comparative serologic and psychological investigations were made in 52 institutionalized patients with dementia paralytica, because it is generally accepted that the spinal fluid provides a reliable lead in assessing the effectiveness of the treatment. In general, it was found that the treated patients with negative spinal fluid reactions showed a more pronounced deficit both of intelligence and of personality resources than those cases still in an active phase. There was evidence, on the one hand, that part of the impairment to psychological functioning is reversible when the disease process is arrested early in the psychotic stage and, on the other hand, that some of the patients may continue to deteriorate even though treatment has rendered their spinal fluid negative. These results seem to indicate that two pathogenetic factors have to be considered one probably connected with the inflammatory component and responsible for the acute clinical picture and the pathological changes in the spinal fluid and relatively easily influenced by modern therapeutic methods, and another one, long acting, not easily or not at all influenced by therapy and responsible for the slowly progressing deterioration. There are reasons to believe that this second factor is a vascular one, as suggested by Merritt and co-workers.

Am J Roentgenol & Rad Therapy, Springfield, Ill

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- Roentgen Interpretation of Vesiculograms. A Pereira—p 361
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Delaware State Medical Journal, Wilmington

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Florida Medical Association Journal, Jacksonville

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- Experience with Peritoneoscopy in Duval County F G King—p 643
 Intralaryngeal Arteriolectomy in Bilateral Abductor Paralysis of Vocal Cords. T M Edwards—p 647
 Intra Abdominal Apoplexy Report of Case E P Preston J W Snyder and R L Evans—p 652
 *Parathion Poisoning in Citrus Grove Operations in 1951 J W Williams J T Griffiths Jr and C R Stearns—p 655

Parathion Poisoning in Citrus Grove Operations—Between March 1 and Oct 31, 1951, 28 cases of supposed parathion poisoning in men employed in the spraying of citrus fruit were reported to the Florida Citrus Experiment Station. Of these 9 cases were confirmed as due to parathion poisoning by blood cholinesterase tests, 8 were probably due to parathion poisoning and 11 were definitely not parathion poisoning. All but one of the nine authenticated cases were exposed to parathion spray for more than 10 days. The histories of 13 patients are presented. Those of the nine authenticated cases of parathion poisoning emphasize the extreme importance of regular blood examinations during parathion exposure and the necessity for immediately removing a man from exposure if the red blood cell cholinesterase values drop below 70% of normal. One case suggests that in order for cholinesterase tests to be valid diagnostic aids, they must be made immediately after the patient becomes ill, as in some cases the cholinesterase levels return to normal quickly. The four other case histories suggest that the use of alcoholic beverages by those exposed to parathion may precipitate or aggravate symptoms of poisoning.

Georgia Medical Association Journal, Atlanta

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Journal of Investigative Dermatology, Baltimore

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 Low Back Pain—Referred Pain from Deep Somatic Structure of Back. R J Dittich—p 63

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Kansas Medical Society Journal, Topeka

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 Two Cases of Chylous Ascites and Chylothorax in Infants with Recovery M J Blood and R C Fairchild—p 108
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 Repair of Large Abdominal Wall Defects with Fiberglass Fabric C A Hardin—p 117
 *Treatment of Hyperthyroidism with Radioactive Iodine I^{131} M S Allen H H Dunham C E Montgomery and E T Siler—p 120

Treatment of Cervical Stump Carcinoma—Of 240 patients with carcinoma of the cervix treated by the author between 1933 and 1953, 26 (10.8%) were treated for carcinoma of the cervical stump. Most gynecologic surgeons consider two years as the dividing line in separating the "true stump cancer" cases from those in which the cancer was present but not recognized at the time of hysterectomy. Of the author's 26 cases, 13 occurred two years after supravaginal hysterectomy, which compares favorably with the figures given by others. The author as radiologist considers it of academic interest whether the case is a true stump cancer or a missed uterine-cervix cancer. Treatment is necessary in every case. In the present era of surgical use of antibiotics and blood banks, figures quoted by skilled surgeons indicate that mortality following complete hysterectomy is no greater than that seen with supracervical hysterectomy. Of the author's 26 patients 12 are living and 14 are dead. Of the 12 living patients, 7 have lived beyond the five-year period, constituting a 23% five year survival, which is slightly lower than the five year survival of 26.3% for all cancers of the cervix as reported by nine large clinics. Treatment consists of local irradiation of the cervix supplemented by external irradiation. In most cases in the past treatment has been with radium applied locally in the form of a contact capsule or interstitial needles. In the author's hands transvaginal irradiation has seemed safer and more efficient than locally applied radium. His present technique uses x rays with a half value layer of 1 to 15 mm of copper, depending on the bulk of the tumor to be treated. A dose of 500 r to 750 r is administered daily through the transvaginal port. On the same day x rays are administered through two external ports, crossfiring the pelvis. There may be as many as 20 separate applications. The one field treatment plan for transvaginal roentgen therapy is limited as to dosage by the reaction at the level of the external os. Up to now an air dose of 7,500 r to 10,000 r directed at the cervix through a single port has been used.

Treatment of Hyperthyroidism with Radioactive Iodine—From May 1950, to December, 1952, 111 patients with hyperthyroidism were treated with I^{131} at the University of Kansas Medical Center. Of these, 50 have been followed for at least six months since their last treatment. Remission of thyrotoxicosis occurred in 79 of the 111 patients. Results were unsatisfactory in 3, and were not evaluated in 29. Among the 50 patients who have been followed up for six months or more remission occurred in 48 (96%) and 2 were therapeutic failures. Total doses of I^{131} in this group ranged from 3 to 29 mc in patients with diffuse toxic goiters, with an average dose of 10.5 mc. The six patients with nodular toxic goiter required total doses of from 9 to 67 mc, the average being 29 mc. Clinical myxedema occurred in 7 (14%) of the 50 patients. The failure of treatment in two patients was attributed to previous administration of iodine-containing medications or diagnostic contrast mediums. Attempts at I^{131} therapy were ill advised in these patients. Radioactive iodine uptake rates below 20% at the two month follow up period predicted sustained remission of thyrotoxicosis in all but one patient. Exophthalmos was present in 29 of the 111 patients. Of the 29 patients 17 were followed at least six months, 7 showed marked improvement in the exophthalmos, slight improvement

occurred in 4, and no change was observed in 6. Retreatment was frequently necessary to bring about a sustained remission of hyperthyroidism and apparently did not increase the incidence of post-treatment myxedema.

Kentucky State Medical Assn Journal, Bowling Green

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- Small Bowel Tumors with Presentation of 12 Cases A E Grimes and W T Swartz—p 85
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- Advances in Surgical Management of Carcinoma of Colon E M Bricker—p 131
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Ostealgia W L Woolfolk—p 151
Treatment of Burns in Case of Atomic Warfare H S Harris—p 155

Laryngoscope, St Louis

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- *Late Development of Laryngeal and Pharyngeal Carcinoma in Previously Irradiated Areas P H Holinger and W F Rabbett—p 105
Endaural Modified Radical Mastoidectomy J A Moore—p 113
Advances in Use of Antibacterial Substances P A Bunn—p 128
Osteoma of External Wall of Frontal Bone Removal by Endonasal Plastic Approach N L Fineberg—p 137

Late Development of Laryngeal and Pharyngeal Carcinoma in Irradiated Areas—Holinger and Rabbett describe three patients with malignant lesions of the pharynx and larynx in whom the tumor developed in an area previously irradiated for a benign lesion. Two of these three patients were women. All three of the patients had been given roentgen irradiation for tuberculous infection of the cervical lymph nodes, 32, 30 and 27 years previously, respectively. The two women now have a squamous cell carcinoma and the man a fibrosarcoma in the direct line of the previously administered irradiation therapy. A review of the literature revealed the reports of 10 similar cases. The total series of 13 included 4 men and 9 women. The irradiation therapy had been given either for tuberculous cervical adenitis or for thyrotoxicosis from 20 to 32 years before the development of the neoplasm. The authors do not believe that the association of the irradiation and the development of the tumor is merely coincidental. Since irradiation therapy was commonly given for benign conditions of the neck several decades ago, more of these cases may be seen in the near future.

Medical Annals of District of Columbia, Washington

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- Acute Hypotension and Cerebral Hemodynamics Preliminary Report F A Finnerty Jr L Witkin and J F Fazekas—p 115
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Acute Cholecystitis Comparative Study of 60 Consecutive Cases of Acute Cholecystitis Treated by Immediate Surgery and 60 Consecutive Cases Treated by Delayed Surgical Intervention A Horwitz R G McCorkle Jr and S Alpert—p 127
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Nebraska State Medical Journal, Lincoln

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Present Status of Cardiovascular Surgery B R. Walske—p 42
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New England Journal of Medicine, Boston

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*Acute Postoperative Pancreatitis J E Dunphy J R Brooks and F Achroyd—p 445
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Cancer of Lung in Physicians—Letters and questionnaires were sent to the estates of physicians who had died of cancer of the lung, colon, stomach, kidney and bladder, leukemia, lymphoma and sarcoma. Death notices in THE JOURNAL provided information about the primary diagnosis. The years 1950 and 1951 and the first two months of 1952 were selected with regard to cancer of the lung, death notices of 1949 were included in this investigation. Of the 118 questionnaires mailed to the relatives of physicians who had died of pulmonary cancer, 63 were completed, and of the 214 questionnaires sent to the relatives of physicians who had died of other forms of cancer, 133 were completed. Exposures to possible respiratory irritants were studied in 63 physicians with cancer of the lung and 133 physicians with cancer outside the respiratory tract. A highly significant association between the use of tobacco and the development of pulmonary cancer was found among physicians. The estimated mortality from cancer of the lung rose from 10 per 100,000 among nonsmoking physicians to 133 per 100,000 among physicians smoking 35 or more cigarettes a day. There were no significant differences in exposure to respiratory irritants other than tobacco among the two groups. These results agree with those of previous studies. The mortality rate was greatest among cigarette smokers, but even among cigar and pipe smokers it was greater than that among nonsmokers, indicating an association of cancer to all three forms of smoking, even though this relation appears greatest with cigarette smoking.

Acute Postoperative Pancreatitis—Dunphy and co-workers describe eight cases of acute postoperative pancreatitis, which they observed over a period of two years, and they also cite studies carried out by others. They feel that acute postoperative pancreatitis is a tragic and somewhat inexplicable accompaniment of surgical operations. It occurs more frequently than has been supposed, and may follow operations in which trauma to the pancreas, reflux of bile into the pancreatic ducts, or obstruction of the main pancreatic ducts can be excluded. Usually, however, it follows operations on the biliary tract and stomach, which involve mobilization and manipulation of the pancreas. Minor interference with the blood supply to the pancreas may be an important factor, if combined with trauma to the gland or partial obstruction to the pancreatic ducts. The posterior pancreaticoduodenal artery and the duct of Santorini are particularly vulnerable to injury when the duodenum is mobilized during gastrectomy. In cases in which major obstruction or injury to the ducts can be excluded, sludging of the pancreatic secretions incidental to medication, dehydration, or other factors associated with surgical operations may be a contributing factor that merits further investigation.

New Jersey Medical Society Journal, Trenton

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 Use of Free Full Thickness Skin Grafts in Incisional Hernias V Spina
 and L E Reginato—p 230

Plastic Surgery in Treatment of Hemangioma—Arterial hemangioma may occur anywhere on the body as a bright red area usually raised from the surface, and may be multiple. This red area may be only part of the tumor, as it may extend out beneath the skin around the more noticeable red portion. The tumor may also occur in a spotty arrangement, sometimes with the deeper elements connecting the more superficial red areas. The arterial hemangioma is locally destructive. When it is called a "birthmark" or "strawberry mark," the "friendly" terms, themselves, may lend false security in what has been observed to be a potentially dangerous lesion although some

arterial hemangiomas may regress spontaneously. Small raised or flat tumors located where the resulting scar is of no practical importance can most easily be completely destroyed with a fine cautery. If all arterial hemangiomas could be seen at this stage of development, there would be no need for further discussion of treatment. Some of these lesions can be surgically excised and the wound closed if the location permits. Most of the ones observed by the authors occurred about the face where excision and closure would require removal or distortion of a feature. Extensive resurfacing with a graft on the face is seldom the immediate treatment, and flap coverage may be even less desirable. Primary surgical resection of large growths might be dangerous to life. Minimal interstitial irradiation with gold radon seeds has been found satisfactory in many instances. External irradiation by radium or x rays may be used, but may be impractical because of the difficulty of holding the radium in place on a small infant, or because it may be almost impossible to hold the infant still for a calculated dose of x-rays. Interstitial irradiation also is of advantage in the treatment of the more solid endothelioma beneath the skin. With the aid of photographs and legends, the authors present additional observations on the use of the multiple suture control of large vessel angiomas along with details of minimal interstitial radiation treatment of bright red or arterial hemangiomas. They also refer to their earlier reports on this form of treatment, and they cite the opinions of other observers.

Postgraduate Medicine, Minneapolis

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- Education for Careers in Public Health J S Simmons—p 281
 Physician's Role in Preventive Medicine and Public Health H R
 Leavell—p 287
 Physiology and Environment J L Whittenberger—p 299
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 Health Problems of Mothers and Children S B Kirkwood S W Dooley
 and H C Stuart—p 309
 Solving a Community Health Problem J E Gordon H R Leavell and
 T H Ingalls—p 318
 Industrial Health P Drinker L Silverman C P Yaglou and others
 —p 323

Proc Staff Meet Mayo Clinic, Rochester, Minn

28 121 144 (March 11) 1953

- *Micrococci (Staphylococci) Enteritis as a Complication of Antibiotic
 Therapy Its Response to Erythromycin W H Dearing and F R
 Heilman—p 121
 Electrical Rhythms Recorded from Depth of Frontal Lobes During Opera-
 tions on Psychotic Patients R G Bickford A Uihlein and M C
 Petersen—p 135

Erythromycin to Counteract Enteritis Resulting from Antibiotic Therapy—In this paper Dearing and Heilman present additional evidence that resistant strains of *Micrococcus pyogenes* (staphylococci) may develop in patients as a result of administration of antibiotic agents. These resistant strains of micrococci (staphylococci), when present in the intestinal tract in large numbers, may produce varying degrees of gastro intestinal and systemic reactions. The 44 patients reviewed here had been hospitalized for some illness or surgical procedure. Cultures were made from the intestinal lumen at the time of operation on the intestinal tract in some of these patients who had received oxytetracycline (Terramycin) prior to such operations. If micrococci were found, one of two procedures could be used. 1 The patient received erythromycin prophylactically the day after operation, 2 The patient was observed to ascertain whether symptoms would develop if no erythromycin was administered. Oral administration of erythromycin was then begun if symptoms did occur. Erythromycin was given orally in doses of either 300 or 400 mg four times daily until the untoward symptoms subsided and the micrococci disappeared from the stool. Many of the patients who experienced diarrhea after antibiotic therapy had cultures of the stool made to determine whether *Micrococcus pyogenes* was present. The data on these 44 patients are summarized. There was suggestive but not conclusive evidence that this micrococcal enterotoxin reaction is not necessarily related to pseudo membranous enterocolitis.

Archives des Maladies du Cœur, Paris

46 97-192 (Feb) 1953 Partial Index

- *Prognosis in Subacute Infectious Endocarditis Treated with Antibiotics Results of Treatment in 202 Cases E. Donzelot J M Le Bozec H Kaufmann and J E Escalle—p 97
- Early Detection of Arterial Disturbances in Limbs of Diabetics A Jouve J Pierron and E. Bourdoncle—p 108
- Pyruvicemia and Cardiac Functional Neurovegetative Disturbances J F Merlen—p 117
- Intracardiac Pressure Curves in Constrictive Pericarditis A. Tourniaire J Blum F Deyrieux and M. Tartuiler—p 129
- Measuring the Heart Volume by Tomography P Broustet C Wangermez, Guillon and H Bricaud—p 143
- Auriculo-Ventricular Dissociation Complicating a Pregnancy A Gaquière Monet and Arnaud—p 151

Subacute Infectious Endocarditis Treated by Antibiotics—Results of antibiotic treatment of 202 patients with subacute infectious endocarditis, some with a follow up of seven years, were studied in relation to prognosis. There were 49 deaths during treatment or within three months afterward caused by persistence of the infection, often with cardiac and renal complications, or by the development or exacerbation of cardiac or renal insufficiency in spite of regression of the "infectious syndrome." Results among the survivors were considered good when the patient's condition was excellent or permitted almost normal activity and poor when symptoms indicated exacerbation of the cardiac condition or renal or neurological sequelae. Follow up of from 1 to 7 years showed 21 late deaths and 132 survivors, of whom 120 had good results, 4 had poor results, and 8 failed to reply to letters in 1952. Heart failure was the principal cause of the late deaths. The immediate death rate is highest in the primary forms of subacute infectious endocarditis, with the abacterial forms and those occurring in patients with aortic affections next in order. Subacute infectious endocarditis rarely occurs in patients in heart failure, but when it does it is fatal. Factors affecting the prognosis unfavorably are prolonged febrile episodes, cardiac complications, such as angina, acute cor pulmonale, bundle-branch block, and especially heart failure, and renal insufficiency. Persons who have apparently recovered from subacute infectious endocarditis still have heart disease, and, even though their condition seems satisfactory, they may sooner or later have recurrences caused by a fresh infection or show signs of cardiac deterioration or renal insufficiency. Recurrences and renal insufficiency are rare, but heart failure appears in 10% of the survivors within from 3 to 60 months. The late results in this series show that a stable cure was obtained in 65% of the severe cases and that the classic form of subacute infectious endocarditis in a patient of middle age, with a history of rheumatic fever, with no previous heart failure, and with positive blood cultures was cured in 83% of the patients, more than 70% remaining alive and well from four to seven years after the end of treatment.

Arztliche Forschung, Munich

7 85-136 (March) 1953 Partial Index

- Pharmacologic Aspects of Pain Sensation K. Soehring—p 85
- Critical Evaluation of Vitamin T (Goetsch) on Pathogenic Leptospirae. H-G Gram and H-W Schlipf—p 97
- Verification of Action of Horse Chestnut Extract on Capillary Permeability H. Kuchmeister—p 102
- Mode of Action of Salicylic Acid Curing Rheumatism by Damaging the Liver? H. Schumacher—p 117
- *Fate of Intravenously Administered Iron W. Lintzel—p 134

Fate of Intravenously Injected Iron—The fate of intravenously administered iron was investigated in young cats with iron deficiency. Examination of the organs of these animals from two to three days after the last injection of iron revealed that most of the iron was deposited in the liver. After injection of very large amounts that greatly exceeded the therapeutic doses, some iron deposits were found in the lungs and occasionally in the spleen. The kidneys always remained free of iron. Since passage through the liver is the best for therapeutic utilization, intravenous administration of iron seems to provide an efficient and rapid method to compensate for an existing iron deficiency.

British Journal of Venereal Diseases, London

29 1-56 (March) 1953

- Cortisone in Treatment of Syphilitic Eye Disease A N Ashworth—p 3
- Investigation into Use of Cardiolipin Antigens. I Anticomplementary Action of Cardiolipin. I N O Price—p 12
- Penicillin Treatment of Cardiovascular Syphilis H. Beerman—p 18
- Fixed Eruption Due to Sulphonamide Hypersensitivity D J Campbell and J O Doyle—p 32
- Residual Non Gonococcal Urethritis P A M and Sulphathiazole in Treatment of Gonorrhoea. C D Alergant—p 34
- Terramycin in Early Lymphogranuloma Venereum. K. S Henley—p 36

British Medical Journal, London

1 577-632 (March 14) 1953

- Opportunities for Research in General Practice. R. Platt—p 577
- Is Early Treatment Essential in Cancer? S. Russ—p 580
- Early Diagnosis and Treatment of Carcinoma of Nose. E D D Davis—p 582
- *Survey of 647 Cases of Leukaemia 1938-51 W R Gauld J Innes and H N Robson—p 585
- Effects of Glandular Fever Infection in Acute Leukaemia A W Taylor—p 589
- Monocytic Leukaemia Presenting as Polyarthritides in an Adult J R Hindmarsh and D Emslie Smith—p 593
- Mass Treatment of Treponemal Diseases, with Particular Reference to Syphilis and Yaws T Guthe F W Reynolds P Krag and R R Willcox—p 594
- Proguanil and Blackwater Fever I Singh—p 598
- Renal Excretion of Urea in West African R. A Kenney—p 600

Survey of 647 Cases of Leukemia—Two separate surveys were carried out in Scotland of 647 patients with leukemia, 440 of whom were admitted to hospitals in Edinburgh and 207 in Aberdeen between 1938 and 1951. Contrary to previous reports, the commonest type was chronic lymphatic leukemia, followed by the chronic myeloid, acute lymphatic, acute myeloid, and monocytic types, in that order. In about one fifth (140) of the total number of cases the blood contained no leukocytes. This phenomenon occurred most frequently in the acute forms of the disease and was least common in chronic myeloid leukemia. The age incidence of the chronic lymphatic (average age 61.5 years), of chronic myeloid (average age 49.8 years), and of acute lymphatic types (average age of 20.4 years) conformed to the previously reported figures, but acute myeloid and monocytic leukemia with age ranges of from 14 months to 80 years, and from 9 months to 86 years, respectively, showed a much wider range of incidence than is generally reported. Males were affected oftener than females, in the ratio of 7 to 6. The male predominance was most pronounced in chronic lymphatic leukemia, and was less obvious or not evident in the other types. Evidence is presented that suggests that there has been a two-fold increase in the over-all incidence of leukemia in Scotland over the period of this survey. There seems to have been a particular increase in the lymphatic type of the disease, but the incidence of all forms is increasing.

Lancet, London

1 503-554 (March 14) 1953

- *Q Fever in Great Britain. Analysis of 69 Sporadic Cases with Study of Prevalence of Infection in Humans and Cows. B P Marmion, M G P Stoker J H McCoy and others—p 503
- Bacteriophage Typing of Strains of Staphylococcus Aureus from Various Sources R E O Williams J E Rippon and L M Dowsett—p 510
- Bacteriophage Typing of Strains of Staphylococci Isolated in Australia P M Rountree—p 514
- Treatment of Cerebral Gliomas with 24-Million Volt X Rays. D A Layne V Logue W V Mayneord and others—p 516
- Cat Scratch Disease. Intradermal Test in Controls F R Bettley and E A Fairburn—p 520
- Use of Terramycin in Infections in Diabetics with Special Reference to Gangrene J B Walker—p 521
- Maintenance of Trendelenburg Position by Skin Friction C L Hewer—p 522
- Urine in Seven Cases of Chronic Cor Pulmonale J J Segall—p 524

Q Fever in Great Britain—Explosive outbreaks represent only one aspect of Q fever in Britain. Because the final diagnosis of Q fever depends on a retrospective laboratory test, the cases identified probably represent but a small proportion of the total number that actually occur. Judging by specimens received at the Virus Reference Laboratory, Colindale, Q fever accounts for 9% of cases of atypical pneumonia (com-

pared with 8% due to influenza and 1% due to psittacosis) and for 5% of pyrexias of unknown origin. The principal sources of human infection are now known to be cattle, sheep, and goats, animals that may appear to be healthy but excrete the Q fever organism in the feces, urine, milk, placenta, and fetal membranes. Man is probably infected either by inhaling dust contaminated with these excreta or by drinking infected milk. The organism is remarkably hardy, and the pasteurization methods provide only marginal safety. It also resists many disinfectants and can persist in dust for long periods in normal ranges of temperature and humidity. This may explain why Q fever is not limited to those whose residence, occupation, or habits bring them into direct contact with cattle, sheep, or goats, or their products. Excluding outbreaks, 69 sporadic cases of Q fever have been identified in Britain since the disease was first discovered there in 1948, 58 of these had typical clinical attacks, usually resembling atypical pneumonia. Four patients died during the infection, 2 with pulmonary infarction, and one of these may have had chronic Q fever. Two thirds of the patients gave a history of exposure to known sources of Q fever. Of 4,407 normal blood donors in England and Wales, 91 (2.13%) showed serological evidence of previous infection with Q fever. Examination of the milk from 1,031 herds of cattle showed that 8.2% of the herds in Kent were excreting *Rickettsia burnetii* in the milk, compared with 2.7% in Devon and 0.85% in East Anglia.

Lyon Chirurgical

48 129 256 (Feb-March) 1953 Partial Index

- *Late Complementary Adrenalectomy in Sympathectomized Patients with Thromboangitis (Five Cases, One with Cortical Adenoma) R Leriche —p 129
- *Nonsurgical Treatment of Urogenital Tuberculosis Present Status of Therapeutic Indications J Cibert.—p 133
- Results of Surgical Treatment of Lung Cancer P Santy and M Bérard.—p 149
- Surgical Treatment of Nontraumatic Intracerebral Hemorrhage P Wertheimer and G Allègre —p 172.

Late Complementary Adrenalectomy in Thromboangitis After Sympathectomy.—Patients with thromboangitis may have persistent edema of the foot with ulceration and pain in the toes after lumbar sympathectomy. Amputation in such cases is not inevitable. Complete regression of symptoms can often be secured by a complementary perifemoral sympathectomy if the artery is permeable for an average of from 8 to 12 cm or by an arterectomy if it is obliterated. A low sympathectomy can also be supplemented by a high one, and vice versa. The vasodilatation following these procedures corrects the residual ischemia. Similar benefits may be derived from adrenalectomy even after a lapse of years. Leriche reports cases in which the disease was arrested and amputation was avoided by adrenalectomy performed some years after the first appearance of symptoms, even after one limb had already been sacrificed. Microscopic adrenal adenomas are often seen in patients with thromboangitis, and on one occasion adrenalectomy resulted in the removal of a tumor the size of a walnut. Leriche's 33 years of experience and the records of more than 150 adrenalectomies lead him to consider it the best possible operation for patients with thromboangitis.

Nonsurgical Treatment of Urogenital Tuberculosis.—The value of antibiotics in the treatment of tuberculous genital lesions in men is limited and their use should be restricted to the severe forms of the disease that often appear later. The possible coexistence of an undetectable, medically curable renal lesion provides the only exception to this rule. Administration of *p*-aminosalicylic acid alone, reserving streptomycin for use in subsequent emergencies, might prove effective in such cases and would eliminate the dangers resulting from drug resistance. Established renal lesions cannot, as a rule, be cured by antibiotic therapy, but when the lesion is slight and renal function is normal or nearly so, nephrectomy can safely be postponed in the hope that the disease may be arrested and rendered quiescent. Some patients will be able to resume an active life with little or no discomfort after a rest period; others may require nephrectomy later if antibiotic treatment proves ineffective or a relapse occurs. Progressive renal destruction

however, may make postponement dangerous in patients who will not accept continued urological observation. Cystitis is a strong indication for surgical intervention. Nephrectomy should not be delayed when the renal lesions are severe or even moderate, because such lesions cannot be cured by medical means and to postpone the operation is to risk a poor result. Antibiotic treatment of bilateral tuberculosis, though merely palliative, has a marked effect on the general condition, results in the disappearance of certain forms of hematuria, clears the urine, and provides at least temporary relief from cystitis of recent origin. The chief value of the antibiotics in urogenital tuberculosis lies in the fact that they have extended the scope of surgical treatment and made it safer and more effective.

Medical Journal of Australia, Sydney

1 209 244 (Feb 14) 1953

- The World Food Problem—Technical or Social? S M Wadham —p 209
- Upper Abdominal Pain in General Practice C. Yeatman —p 216
- Infection of Maxilla in Relation to Maxillary Sinusitis W E Fleming —p 219
- Agranular Adenoma (So-Called "Foetal Cell" Adenoma) of Pituitary Gland Review of Literature. I J Hunter —p 220

Minerva Chirurgica, Turin

8 37 88 (Jan 31) 1953 Partial Index

- *Electrocardiographic Changes During Angiocardiography P F Angelino A Actis Dato and V Levi —p 37
- Arterial Circulation of Hand Anatomic and Surgical Studies. L. L. Bracco and G Ferrero —p 43
- Isolated Tuberculosis of Sternocleidomastoid Muscle One Case. N Masera and G Blanchera —p 58
- *Experimental Studies on Use of Streptodornase Streptokinase and Pancreatic Pyolytic and Fibrinolytic Ferments in Prophylaxis of Postoperative Peritoneal Adhesions. C. Cavallini Francolini and E Lodigiani. —p 65

Electrocardiographic Changes During Angiocardiography.—The authors studied the changes occurring in electrocardiograms taken during angiocardiography in 28 patients with acquired heart disease, 47 with congenital heart disease (31 of these with cyanosis), and 5 with pulmonary neoplasms. Angiocardiography with the injection of 1.2 to 1.5 cc. of contrast medium (a fluid containing 70% iodine) per kilogram of body weight was almost always performed with the patient under local anesthesia. In only nine children was general anesthesia necessary. Transitory bradycardia was seen in patients with acquired and congenital heart disease, but it lasted longer in those with congenital heart disease in whom cyanosis was also present. In patients with acquired lesions of the mitral valve, it was followed by normalization of the heart rhythm and then often transitory tachycardia. Tachycardia followed the injection of the contrast medium in patients with sinus rhythm and total arrhythmia and lasted as long as 5 to 10 minutes. Transitory extrasystoles appeared 10 to 20 seconds after the injection in four patients with mitral stenosis and sinus rhythm. There were never changes in the QT interval and the electric atrioventricular conduction. In one third of the patients with congenital heart disease and one-half of those with acquired heart disease there was a reduction in the voltage of the QRS complex in the three leads, but this also disappeared in a few minutes. The T wave showed reduction of voltage, leveling, and inversion in patients with acquired heart disease and especially in those with mitral stenosis. These changes were less evident in patients with congenital heart disease, and the authors attribute them to the anoxia produced in the myocardium immediately after the injection of the contrast medium. Clinical observations of the patients during this phase of coronary insufficiency as indicated by the electrocardiogram revealed precordial distress and difficult breathing. To avoid these phenomena, oxygen was given to some patients before, during, and after angiocardiography was performed. To other patients morphine, atropine, and sparteine were given before hand, but these drugs did not influence the electrocardiographic tracings. In the children who were under general anesthesia the T wave tracings did not change significantly, perhaps because of the reflex nature of these phenomena. Also the tracings did not vary greatly in six cases in which a second angiocardiogram was made several days later by

catheterization of the heart with smaller doses of contrast medium injected at a much lower speed. Thus these changes seem to be correlated with the size of the dose of opaque medium, the speed with which it is injected, and its high concentration. The principal factor, according to the authors, is the myocardial ischemia that occurs immediately after the injection and is caused by chemical action of the fluid on the endocardium and the coronary vessels, a reflex coronary spasm, and the arrested flow of blood through the myocardium. Special caution is suggested when angiocardiology is done in patients in whom previous electrocardiograms reveal coronary insufficiency.

Prophylaxis of Intestinal Adhesions with Streptokinase, Streptodornase, and Pancreatic Enzymes—Experiments were made in 30 guinea pigs to study the action of streptokinase, streptodornase, and two pancreatic enzymes (one with fibrinolytic action and the other with lytic action on desoxyribonucleic acid) on postoperative intestinal adhesions. Adhesions were produced in 15 guinea pigs by removing sections of the serous membrane from intestinal loops. Then 20,000 IU of streptokinase and 5,000 IU of streptodornase were injected in five animals and 40 mg of the fibrinolytic enzyme and 10 mg of the lytic enzyme extracted from bovine pancreas in five, five served as controls. Laparotomy performed 20 days later showed that the enzymes had not only failed to prevent the formation of adhesions between the intestine and the parietal peritoneum but had in fact caused the production of more extensive and firmer adhesions than those in the control animals. In addition, the general condition of the treated animals was worse than that of the controls, in which removal of the adhesions was much easier. After the adhesions were removed, the controls were given 5 cc of isotonic sodium chloride solution, whereas the pancreatic enzymes were injected again in five of the others. Three of these died of peritonitis. After 20 days the adhesions were definitely less extensive, less numerous, and less firm in the controls. In a second series of experiments peritonitis was provoked in 15 guinea pigs by repeated perforation of the large intestine with a needle. After three days a dose of streptokinase and streptodornase was injected in five of them, pancreatic ferments in five, and isotonic sodium chloride solution in four that were to serve as controls (one of them had died of peritonitis). Laparotomy 20 days later revealed in this group also larger and firmer adhesions in the animals treated with the enzymes. The study was continued following the procedure used for the animals of the first group, and the same results were obtained. Not only had the enzymes not prevented the onset of adhesions but, according to the authors, they had enhanced the process of their formation.

Presse Médicale, Paris

61 285 304 (Feb 28) 1953 Partial Index

- *Procaine Hydrochloride Esterase in Hepatic Disorder. Diagnostic and Prognostic Significance of Repeated Determinations Made at Short Intervals. R. Hazard and A. Lafitte—p 285
- Study of Bone and Serum Proteases. Experimental Hyperparathyroidism and Its Repercussions on Gastric Mucosa and Serum Protease Ratio. E. Rutishauser and G. Majno—p 286
- Regression of Anatomic Lesions of Experimental Tuberculosis in Guinea Pigs Treated with Isoniazid. J. Baudot, Delaude, Moreau and Serena—p 288

Procaine Hydrochloride Esterase Test in Hepatic Disorders

—In a previous paper one of the authors demonstrated that human serum contains an esterase of hepatic origin that is capable of hydrolyzing procaine hydrochloride into *p*-amino benzoic acid and diethylamino ethanol. The rate and extent of this hydrolysis can be measured by determining colorimetrically, at intervals, the amount of free *p*-aminobenzoic acid in the serum. In normal persons hydrolysis proceeds rapidly, while in patients with liver insufficiency it takes place more slowly. The rate of hydrolysis can, therefore, be used as a test of liver function. To provide a basis for the detection of slight variations in the rate of hydrolysis, the authors established a normal procaine hydrolysis curve by determining the percentage of procaine hydrolyzed at five minute intervals

and plotting these values on a graph. They found that in normal subjects 45% of the procaine is hydrolyzed in 5 minutes, 70% in 10 minutes, 85% in 15 minutes, 95% in 20 minutes, and 100% in 30 minutes. In patients with slight liver insufficiency the rate of hydrolysis was slightly subnormal throughout the test, or was subnormal only during the first 15 or 20 minutes and then became normal. In patients with moderate liver insufficiency, there was 80% or less hydrolysis after 30 minutes (moderately subnormal curve), and in patients with severe insufficiency the curve tended to flatten out at levels as low as 10 or 20%. Repeated tests during the course of liver disease reflected the severity of the liver damage and seemed to have prognostic value. Of 34 patients with progressive alcoholic cirrhosis, 28 had markedly subnormal procaine hydrolysis curves, and the remaining 6 had moderately subnormal curves. Of seven patients with cancer of the liver, three had considerably subnormal curves, two had moderately or slightly subnormal curves, and two had normal curves. Six of seven patients with severe virus hepatitis had markedly subnormal curves. The curves of seven patients with severe jaundice were markedly subnormal in three cases, moderately subnormal in two, slightly subnormal in one, and normal in one. Of eight patients with stones in the common bile duct, four showed normal curves, three slightly subnormal curves, and one a markedly subnormal curve. In certain patients this test for procaine hydrochloride esterase gave subnormal results when other liver function tests, including galactose tolerance, thymol turbidity, cephalin-cholesterol flocculation, cadmium, and prothrombin tests still showed no evidence of liver damage. As a result of these studies the authors consider the procaine hydrochloride esterase test as a reliable measure of the enzymatic function of the liver.

Schweizersche medizinische Wochenschrift, Basel

83 227-250 (March 7) 1953 Partial Index

- Effect of Duration of Storage on Compatibility of Preserved Blood. F. David and E. P. Billeter—p 234
- *Lymphocytic Encephalomeningitis with Involvement of Other Organs. O. Schildknecht—p 236
- *Buffering of Gastric Juice in Study for Mycobacterium Tuberculosis. W. Roth and H. Birkhäuser—p 240

Lymphocytic Encephalomeningitis—The epidemic occurrence in 1950 of benign lymphocytic encephalomeningitis in 10 patients between the ages of 10 and 55 is reported. The disease had a biphasic course in 8 of the 10 patients, including some with the acute type as well as those with the protracted type. The interval between the two phases varied from one week to eight weeks. In the remaining two patients with the acute type of the disease, its course was monophasic. In two patients the disease started with stomatitis. One patient had three bouts of fever, the last being associated with a rash. All patients complained of some form of headache. Examination of the cerebrospinal fluid revealed a pronounced lymphocytic reaction, with 38 to 2,632 cells per cubic millimeter in seven patients. In one patient there were 248 polymorphonuclear cells in a total of 336 cells per cubic millimeter, and in another patient there were 8 polymorphonuclear cells in a total of 12 cells per cubic millimeter. The cerebrospinal fluid was normal in one patient. The protein content varied, and its maximum value was 63.8 mg per 100 cc. Involvement of the liver, sometimes pronounced and sometimes mild, was demonstrated by the galactose tolerance test. The liver was tender on palpation in two patients. Icterus was absent in all patients. Reactions to the Takata test were negative. A rubella-like rash, always occurring in the second phase of the disease, was observed in five patients. Nephritic urine findings occurred in one patient. This was regarded as a generalized virus infection, with primary involvement of the meninges and the nervous system and less pronounced involvement of the liver, skin, and kidneys. Brucellosis, leptospirosis, Q fever and syphilis could be excluded by serologic examinations. Differential diagnosis from poliomyelitis proved to be difficult. The similarity of the condition in the authors' patients to that in patients with epidemic lymphocytic encephalomeningitis reported on in the literature is emphasized.

Buffering of Gastric Juice for Detection of Tubercle Bacilli.—Kabler and Lundholm's technique of buffering specimens of gastric juices with crystalline disodium phosphate before examining them for tubercle bacilli was tested by the authors in experiments on guinea pigs. Only 110 of 395 specimens examined showed tubercle bacilli. Of these 110 specimens, 55 showed bacilli whether the buffer was added or not, 44 showed bacilli only when the buffer was added, and 11 showed bacilli only when the buffer was not added. Of 78 specimens examined on the same day on which they were collected, 24 (30.8%) showed bacilli when buffered and 24 (30.8%) showed bacilli when not buffered. Of 237 specimens examined one to two days after their collection, 58 (24.5%) showed bacilli with the buffer while only 34 (14.3%) did so without the buffer. Of 80 specimens examined more than two days after their collection, 17 (21.2%) gave positive results with the buffer, while only 8 (10%) did so without it. Significantly more positive results thus were obtained from specimens of gastric juice to which the phosphate buffer had been added, provided that the examination of the specimens was delayed for at least one day. Such a delay can hardly be avoided for technical reasons, and consequently buffering is indicated in all cases. The fact that bacilli were found only without the addition of the buffer in 11 specimens may have been due to unequal distribution of small numbers of bacilli in the gastric specimens.

Semaine des Hôpitaux de Paris

29 827-888 (March 10) 1953 Partial Index

- Clinical Applications and Critical Study of ¹³¹I Thyroid Test Guy Laroche L Mallet and J Trémollières—p 827
 *Effect of Isoniazid on Pulmonary Tuberculosis Study of 100 Cases P Vêran—p 834
 Cardiovascular Syndrome in Mass Poisoning by Bread G Giraud H Latour and G Pitot—p 839
 The Skeleton in Herpes Zoster L Iselm and A Fournier—p 845

Effect of Isoniazid on Pulmonary Tuberculosis.—Isoniazid alone was given to 100 patients with pulmonary tuberculosis, more than half of whom had previously received substantial doses of streptomycin. Collapse therapy was used in connection with isoniazid in 12% of the cases. Treatment lasted for from 10 to 12 weeks in most cases, but in 20% it was continued for from 4 to 5 months. The dose which consisted of 5 mg per kilogram of body weight, given in three divided doses daily, increased as the patient gained weight. The drug had a pronounced effect on functional and general symptoms regardless of the age or sex of the patient. Cough was benefited in 67% of the patients, being suppressed in 17%, decreased rapidly in 27%, and decreased slowly in 20%. Expectoration was quantitatively reduced in 60% (suppressed in 18%). Appetite increased rapidly even in patients with long-standing anorexia. In 55% the appetite remained improved after discontinuance of the drug. Gains in weight of from 1 to 6 kg were observed within a month in 66% of the patients. This increase in weight continued for two months in 52% and to a lesser degree after cessation of treatment in 44%. Improvement in the general condition, with euphoria and disappearance of the depression characteristic of tuberculous patients, was rapid, occurring in two-thirds of those who were gravely ill, but was permanent in fewer than half. Fever was relieved in certain patients who had had elevated temperatures for several months, return of the temperature to normal levels was secured after one month in 86% and after two months in 92%. The effect of isoniazid on the radiological signs was much less marked. Recent lesions in all forms of tuberculosis showing the greatest improvement. Cavities were rarely healed, although some were reduced in size. The improvement produced by isoniazid made some patients eligible for collapse therapy, while in others it was possible to defer such treatment advantageously. Tolerance for the drug was generally good. Cochlear and vestibular functions did not seem to be impaired and there were no significant hepatic or renal disturbances. The blood formula, however, should be watched, and constant neurological surveillance must be maintained, because epileptic seizures may occasionally be provoked. Isoniazid should not be given to patients with epilepsy.

Ugeskrift for Laeger, Copenhagen

115 231-266 (Feb 12) 1953 Partial Index

- Operative Treatment of Hypospadias P Fogh Andersen—p 231
 Operative Treatment of Hallux Valgus H B Mygind—p 236
 *Hashimoto's Struma with Report of Two Cases V Olesen—p 241
 Convulsions During General Anesthesia S Jørgensen O Secher and E W Andersen—p 245

Hashimoto's Struma.—Hashimoto's struma is an uncommon disease that affects women in middle life predominantly. It may be seen in all age groups, though seldom in patients under 30. It does not occur particularly in goiter areas. The cause is unknown. The subjective symptoms are few and vague and the goiter has usually been present for from months to years before medical advice is sought. Differential diagnosis with regard to cancer is important. Struma lymphomatosa is characterized by its cartilaginous consistency and the fact that it embraces isthmus and both lobes and is well defined and freely mobile, there are no signs of involvement of blood vessels or nerves or of regional glandular inflammation or metastases. A tendency to myxedema is present, and the sedimentation rate is generally slightly increased. Some persons with mild forms are believed to recover spontaneously. Olesen says that many patients do not require treatment but they should be closely observed for malignancy or symptoms of compression. Operative treatment, when diagnosis is certain, consists of subtotal thyroidectomy. The prognosis is good. Postoperative complications are infrequent. Tendency to recurrence after operation is slight. Recurrences that have been reported are due to the removal of only one lobe. Recovery after roentgen or radium treatment has been reported, but the increased fibrosis that follows may perhaps increase the danger of compression of the trachea. In the two cases described the diagnosis was based on histological findings after thyroidectomy because of suspected malignancy. Postoperative myxedema was controlled by medical treatment.

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- Mechanism of Onset of Labor F Hoff and R Bayer—p 1
 *Further Observations on Isoimmunization During Pregnancy H J Pettenkofer and M Petry—p 12
 Placental Hormones in the Chicken Feeding Test E Haupt—p 21

Isoimmunization During Pregnancy.—Between January, 1951, and May, 1952, blood specimens from 1,763 unselected pregnant women and 3,423 puerperal women were examined at the serological department of the Robert Koch Institute. Forty-three or 2.44% of the pregnant women and 110 or 3.21% of the puerperal women were found to have antibodies to the less common blood group factors. The slightly smaller incidence of such antibodies in the pregnant women is ascribed to the fact that the serum of many of the pregnant women was examined during the early months of pregnancy, when antibodies had not as yet developed. Signs of hemolytic disease of the newborn (erythroblastosis) were observed in 29 of the infants of the 3,423 pregnant women (0.85%). Five of the 29 infants were stillborn. These 5 and 2 other infants showed the signs of hydrops fetalis, 17 had icterus gravis neonatorum and 9 had anemia neonatorum. A table listing the specificity of the antibodies found in the 153 (43 pregnant and 110 puerperal) women shows that the Le^a antibody was the most frequent, but none of the women with this antibody had babies with erythroblastosis fetalis. Twenty-two cases of erythroblastosis developed following immunization with the D factor, 4 cases following immunization against the A factor and one case each following immunization to the C and E factors. Five of the 29 mothers with erythroblastotic infants were Rh positive. It was found that in mothers with the blood group O, isoimmunization during pregnancy is rare, but mothers with the blood group A have a tendency to form antibodies against the erythrocytes of their infants. In 483 unselected cases of birth of healthy infants there were 62.16% multiparas among the Rh-compatible mother-child combinations, whereas in the group of Rh negative mothers with Rh positive children, only 41.67% were multiparas. This difference of 20.49% is statistically significant. Measures that should be taken in case of isoimmunization during pregnancy are discussed.

BOOK REVIEWS

Fundamentals of Clinical Orthopedics. By Peter A. Casagrande M.D. Attending Orthopedist at Chronic Disease Research Institute of University of Buffalo, Buffalo, New York and Harold M. Frost, Jr. M.D. Forewords by Joseph S. Barr M.D. and Frank N. Potts M.D. Special contributors Dr. Bert P. Austin et al. Additional contributors: Mr. Eric Balke et al. Cloth \$18.50 Pp 582 with 390 illustrations Grune & Stratton Inc. 381 Fourth Ave. New York 16 1953

This is a well written and well illustrated text on clinical orthopedics. The divisions permit easy reading, and grouping of the subjects has been extremely well done. Practically no orthopedic problem has been omitted. The manner of presentation is logical in that the clinical aspects of the various orthopedic disabilities are discussed in regard to etiology, physiology, and anatomy. Clinical description is excellent. Treatment has been deliberately minimized, all of the various treatments for the many conditions would have required an other volume. The drawings explaining the mechanism of pulls in fractures, while not extremely new, give a very clear-cut and easily understood description of muscle pull. A notable feature is elimination, as far as possible, of proper names of diseases, signs, and operations. Rather than the proper name, adequate anatomic or physiological terms have been used, and this is of greater value than a group of proper names to memorize. The book is so detailed that it is beyond the use of the medical student, except as a very excellent reference book. For an orthopedic resident, however, it should be very valuable. It would also be a definite contribution to every orthopedic library. The only unfavorable feature is the large size of the book. The printing is excellent, and the size of type makes reading easy. The authors should be complimented for their extensive work in condensing so much material into one volume.

John Abernethy: A Biography. By John L. Thornton, A.L.A. Librarian St. Bartholomew's Hospital Medical College, West Smithfield, London E.C.1. Cloth 25/- Pp 184 with 14 illustrations. Distributed by Simpkin Marshall Ltd. London 1953

The principal sources of information on John Abernethy are found in the "Memoirs of John Abernethy" by George Macilwain, one of his pupils. Although the book is factually accurate, it is somewhat one-sided in the interpretation of the illusive character of Abernethy, probably because the author had not achieved any degree of intimacy with his teacher or his family. The present biography is based on a thorough study of all available material and sheds new light on the controversial personality of Abernethy, as well as on his contemporaries and their relationships with one another.

Abernethy was born in 1764 and lived during the reigns of Charles III and Charles IV. The period was one of intense activity in science and medicine, and young Abernethy took advantage of the facilities offered by the most prominent teachers in London. They were MacLaurin, Sir William Blizard at the London Hospital, Percival Pott at St. Bartholomew's Hospital, Sir Charles Blizard, and the great John Hunter. Abernethy was probably most influenced by Hunter, so that in his own activities he followed his master's philosophical theories. Abernethy was first to ligate the external iliac artery for aneurysm. He also ligated the common carotid for hemorrhage, and improved treatment of lumbar abscesses by incision. He believed that local diseases are either of constitutional origin or are due to digestive disturbances. Abernethy was the founder of the school of British surgery based on physiology rather than anatomy, and is considered the first great English surgeon of the last century to treat his patients by expectant means rather than by operation.

As to the eccentricities and rudeness of Abernethy in his relations to his patients, the opinion of the Duke of Sussex, quoted by the author, probably best describes it: "Mr

Abernethy was one of those pupils of John Hunter who appears the most completely to have caught the bold and philosophical spirit of his great master. He was the author of various works and memoirs upon physiological and anatomical or surgical subjects. As a lecturer, he was not less distinguished than as an author. He enjoyed more than an ordinary share of public favor in the practice of his profession, and, though not a little remarkable for the eccentricities of his manner and an affected roughness in his intercourse with his ordinary patients, he was generally kind and courteous in those cases which required the full exercise of his skill and knowledge, and also liberal in the extreme when the infliction of poverty was superadded to those of disease."

The biography should be of interest to physicians not only because of the contributions of Abernethy but also because of the intimate knowledge that has enabled the author to sketch a number of personalities associated with St. Bartholomew's Hospital and with English surgery of the period.

Collegiate Education for Nursing. By Margaret Bridgman. Cloth. \$2.50 Pp 205. Russell Sage Foundation, 505 Park Ave. New York 22 1953

This book is important to all physicians, nurses, and hospital administrators who are concerned about the future education of nurses. The book outlines in brief the situation in nursing service available today. It shows that there are actually more graduate nurses currently working than at any previous time. At the same time it points out the weaknesses in the present system for education of nurses and recommends that experimentation and research in nursing education be developed on the collegiate level. The book is really a plea for a change in the outmoded and stereotyped teaching methods of the past. The author states that this book "is offered as a basis of discussion in the hope that, with other current studies by many groups and individuals who are working on the problem, it may help to clarify issues and bring about a consensus on principles leading to satisfactory long range plans for action."

Hormonal and Neurogenic Cardiovascular Disorders: Endocrine and Neuro-Endocrine Factors in Pathogenesis and Treatment. By Wilhelm Raab M.D. F.A.C.P., F.A.C.C. Professor of Experimental Medicine, University of Vermont, Burlington. Cloth. \$15 Pp 722 with 88 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves. Baltimore 2 1953

The author's basic thesis stresses the importance, in the production of cardiovascular disease, of the release of the catecholamines, epinephrine, and arterenol into the myocardium and the vascular musculature of the body. He presents many cogent arguments in support of this thesis and attempts, more or less successfully, to show that the actions of such amines on cardiac and vascular tissue are capable of inducing both the functional and structural alterations seen clinically.

On page 525, the author says, "Some time honored but out-dated mechanistic views which interpret cardiovascular functional and structural changes solely in terms of coronary flow and of hemodynamic factors are no longer tenable. They must be revised in the light of present-day knowledge of ubiquitous neuroendocrine and endocrine biochemical influences upon cardiovascular tissue metabolism and of their interplay. Teleological auxiliary hypotheses are becoming increasingly superfluous and should be discarded." He points out that much progress has been made recently in the treatment of hypertension, angina pectoris, and congestive heart failure by such measures as surgical sympathectomy, antiadrenergic medication, and radiotherapy, along with thyroid inactivation, restriction of dietary sodium, and adrenalectomy. Finally, he expresses the thought that even greater progress in therapy may be expected with the greater understanding of the fundamentally biochemical nature of the common cardiovascular disorders. He suggests that the use of the so-called sympatholytic drugs appears ideal as a nonsurgical method of symp

thetic inactivation and feels that dihydroergotamine is safe for clinical use and apparently has normalized both the clinical status and the electrocardiogram in patients with angina pectoris X ray inhibition of adrenal function for the treatment of angina pectoris yielded improvement in 76% of 200 patients, 31% of whom were almost entirely relieved of their symptoms for an average of three and one half years

The student of cardiovascular disorders, both clinical and experimental, should spend much time studying Raab's postulates The volume is well organized, with many cross references in the text as well as an unusually large list of other references The physical make up of the volume is excellent It is well bound, and the type is clear and easily read This book can be recommended without reservation

Der Intermediäre Stoffwechsel. Von Dr. Dr. Konrad Lang o.ö. Professor der physiologischen Chemie Direktor des physiolog.-chem. Instituts der Universität Mainz. Lehrbuch der Physiologie in zusammenhängenden Einzeldarstellungen. Unter Mitarbeit einer Reihe von Fachmännern. Herausgegeben von Wilhelm Trendelenburg und Erich Schütz. Cloth 39 60 marks. Pp 423 with 29 illustrations Springer Verlag Reichpietschauer 20 Berlin W 35 (West Berlin) Neuenheimer Landstrasse 24 Heidelberg Göttingen 1952.

In the preface, Dr. Lang claims that this is the only recent monograph in German on intermediary metabolism In consideration of this fact, he treats both biochemical and physiological aspects of the intermediary metabolism of higher animals, is particularly careful with his nomenclature and style, includes quantitative data where possible, covers the literature with unusual thoroughness, and includes extensive indexes This treatment will allow the work to be used both as a textbook and as a reference work The 20 pages of literature citations will appeal to English-speaking biochemists and physiologists since several recent monographs in English are listed Dr. Lang states that his references are complete through June 1, 1952 American and British publications are cited as often as continental works Wherever possible the older literature is disposed of by citation of reviews, so that the reader interested in pursuing a point will be able to find the most information in the least time

The material includes chapters on methods of research anti-metabolites, biological oxidation, carbohydrates, alcohols and aldehydes, bases, proteins and amino acids, fats and lipids, pyrroles, nucleotides and related compounds, metabolism of aromatic substances, and localization of metabolic processes in cells Paper, printing, and binding are of good quality

Ocular Therapeutics By William J. Harrison MD. Ph.D. F.A.C.S. Associate Professor in Ophthalmology Jefferson Medical College Philadelphia Second edition Cloth \$6.50 Pp 282 Charles C. Thomas, Publisher 301 327 E. Lawrence Ave. Springfield Ill. Blackwell Scientific Publications Ltd. 49 Broad St. Oxford England Ryerson Press 299 Queen St. W. Toronto 2B 1953

Like its predecessor, the second edition of this stout pocket manual on ocular therapeutics provides instructive, useful information for busy, practicing ophthalmologists New data have been added on anticoagulants, ophthalmic uses of cortisone and corticotropin, antibiotics and the sulfonamides, isotonic solutions and buffered solutions, and vitamins The language is clear, concise and colloquial, and it is always very much to the point This book is recommended to younger clinicians

Praktische Arbeitsphysiologie Von Prof. Dr. Gunther Lehmann Direktor des Max Planck Instituts für Arbeitsphysiologie Dortmund. Cloth. 33 marks Pp 355 with 145 illustrations Georg Thieme Verlag Stuttgart 47 (14a) Stuttgart O. Agents for U.S.A. Grune & Stratton Inc. 381 Fourth Ave. New York 16 1953

This book takes up problems of work output in industry as related to the functions of the human body This branch of physiology is an essential part of the basis for occupational hygiene An introductory chapter classifies types of work according to the relative importance of the physical and the psychological elements involved Subsequent chapters deal with muscular work, conditions for muscular efficiency (problems of posture and fatigue), energetics (metabolism), the rational planning of machinery and optimum working conditions, environmental factors including radiation and ventilation, composition and pressure of the air, problems relating to the ear

and eye, relation of nutrition to work output, evaluating and encouraging efficiency, and optimum duration of work periods

There is a glossary and an index, and bibliographic references follow each chapter In a few places (e.g., page 300) the author lapses into the complex sentence structure characteristic of some German textbooks, but generally his style is simple and direct, and the subject matter is made concrete by quantitative information and some good illustrations This book will be a valuable addition to every library devoted to industrial medicine and occupational hygiene

Grundzüge der physikalischen Therapie der Hals-, Nasen- und Ohrenkrankheiten Herausgegeben von Dozent Dr. A. J. Cernach. Unter Mitarbeit von Dozent Dr. O. Novotny Dozent Dr. L. Psennner und Primarius Dr. A. Riccabona. Teil II Die Röntgentherapie in der Oto-Rhino-Laryngologie Von Dozent Dr. O. Novotny 1. Assistent der I. Hals-, Nasen-, Ohrenklinik Wien und Dozent Dr. L. Psennner 1. Assistent am Zentral Röntgen Institut Wien Band IV Wiener Beiträge zur Hals-, Nasen- und Ohrenheilkunde begründet von Prof. Dr. Camillo Wieth Paper 15 marks Pp 105 with 22 illustrations. Wilhelm Maudrich Alserstr. 19 Vienna VIII/65 1953

This paper bound volume is the second of a set of three dealing with physical methods of treatment in diseases of the ear, nose, and throat The other two volumes will deal with the therapeutic use of light, electricity, radium, and inhalations, the present volume deals solely with roentgen rays It is divided into two parts, the first devoted to general considerations of technique and dosage and the second to particular consideration of the outer ear, middle ear, nose (with accessory sinuses and nasopharynx), mouth, pharynx, larynx, and esophagus The author presents his subject in succinct, concrete form Illustrations and statistical data supplement the text The bibliography of 48 references is confined to European publications, but the text reflects current American thinking as well The book is recommended to those who read German

Pédiatrie Par Robert Debré et Marcel Lelong. Avec la collaboration de Stéphane Thieffry et Jean Rivron et al. Collection médico-chirurgicale à révision annuelle Directeur général Pasteur Vallery Radot. Secrétaire général Jean Hamburger In 2 volumes. Loose-leaf Cloth. 14 500 francs Pp 1154 1159 2234 with 388 illustrations Editions médicales Flammarion 22 rue de Vaugirard Paris-VI* 1952.

An outstanding attribute of these volumes is the loose-leaf form that permits the addition of supplementary material These books might well fill the gap between standard textbooks, which require frequent revision, and the more extensive and expensive works on pediatrics, which are difficult to keep up-to-date The volumes have adequate, technically superior illustrations The material is well organized, with useful cross references

Apparently much of the world literature was not available to the authors, as a considerable amount of the material is not up-to-date, and the bibliographies at the end of the chapters are made up primarily of other textual material Many outstanding contributions have been made by French pediatricians and by the authors, but these two volumes do not represent current pediatric knowledge This book may be intended for the use of general practitioners in France, but the content would not be suitable for this purpose in the United States

Artificial Light and Photography A Treatise on Artificial Light Sources and Their Application in Photography By G. D. Rieck and L. H. Verbeek With foreword by A. L. M. Sowerby B.A. M.Sc. FRPS English translation of this work is by G. Ducloux-Sutton (England) Cloth \$8.25 Pp 326 with illustrations. [Elsevier Press Inc. 402 Lovett Blvd. Houston 6 155 E. 82nd St. New York] N. V. Philips Gloeilampenfabrieken Eindhoven Netherlands 1952.

The subject of artificial light and its application to photography is very well covered by the authors Various types of artificial light sources, such as incandescent and fluorescent light, gas discharge tubes, and flash bulbs are discussed in detail Although sections of the book are highly technical, there are many examples of lighting problems encountered by the advanced amateur as well as by the professional photographer Only a page and a half is devoted to a general discussion of clinical photography The over-all format of the book is excellent The illustrations, four of which are in color, are outstanding The basic material presented will be valuable to clinical photographers, professional and commercial photographers, and the advanced amateur

QUERIES AND MINOR NOTES

THE PREVENTION OF KIDNEY STONES

TO THE EDITOR—A patient of mine, aged 47, has had kidney stones for 20 years. He has had many cystoscopic examinations and has had stones removed from both kidneys several times. He passes small stones every day. He has tried every diet obtainable and about every medicament recommended. He read an article about some colloid that was used for such a condition and asked me to find out about it.

Wallace R. Smith, M.D., Grand Marais, Minn.

ANSWER—The article read by this patient probably referred to treatment of urinary calculi by subcutaneous injections of hyaluronidase. Butt and Hauser (*New England J Med* 246:604, 1952) stated that such injections increase colloidal activity of the urine and thereby prevent crystalloids from coalescing and forming a stone. The dose and frequency of injections are determined by noting the ability of the drug to convert macroscopically cloudy urine into macroscopically clear urine. It appears that 150 to 900 turbidity reducing units injected at 24 to 72 hour intervals are necessary to keep the urine clear. Helsby and co-workers (*J Urol* 69:354, 1953) noted that injections of hyaluronidase failed to prevent formation of stone about a foreign body placed in the bladder of rats. They hasten to point out, however, that their experiments do not refute the claim that hyaluronidase prevents formation of stone in humans and suggest that this notion will have to be substantiated by further observations. Sufficient time has not elapsed to permit corroboration of the efficacy of this form of treatment by other workers, so that any opinion given at this time is premature.

Prevention of the recurrence of calculi requires thorough investigation by a urologist. Determinations of the calcium, phosphate, phosphatase, and uric acid levels, carbon dioxide combining power and chloride content of the blood may be necessary in a search for the cause of calculus formation. The chemical nature of stones that have been passed or removed surgically must be determined and it may be necessary to examine the urine for cystine crystals. Urographic studies and bacteriological examinations of the urine are essential. These tests may indicate the cause of the stones and suggest a definitive form of treatment. Thus, hypercalcemia, hypophosphatemia, hypercalciuria, and hyperphosphaturia indicate hyperparathyroidism. The diagnosis can be corroborated by other studies, and treatment consists of excision of an adenoma of the parathyroid gland. Hyperuricemia may indicate that the calculi are composed of uric acid, although in the majority of patients with uric acid calculi the uric acid content of the blood is normal. If analysis of the calculi shows the presence of uric acid, a low purine, alkaline ash diet is indicated, in addition, sodium bicarbonate is prescribed in an effort to maintain the urine constantly alkaline, to take advantage of the increased solubility of uric acid in an alkaline medium. Hyperchloremia and acidosis may indicate deficient formation of ammonia by the kidney, resulting in excretion of fixed base and formation of calcium stones. Therapy consists of an alkaline ash diet and the administration of sodium bicarbonate. If analysis of the stone indicates cystine or if cystinuria is found, a low sulfur, alkaline ash diet and use of sodium bicarbonate are prescribed to keep the urine intensely alkaline and thereby take advantage of the increased solubility of cystine in an alkaline medium. Urographic studies may indicate the need for pyelolithotomy, nephrolithotomy, excision of a calyx, a plastic procedure, or nephrectomy.

If a causative factor cannot be discovered, specific treatment must be guided largely by analysis of the stone. A treat-

ment commonly employed in management of calcium stones is a low calcium diet and acidification of the urine by means of an acid ash diet and administration of ammonium chloride or ammonium nitrate. The effectiveness of this therapy is distinctly limited. The most satisfactory treatment employed for calcium phosphate stones consists of measures directed to reducing the urinary excretion of phosphorus. A diet low in calcium and phosphorus along with 80 to 180 cc of aluminum carbonate gel (Basaljel) in divided doses is prescribed. The aluminum carbonate gel combines with the phosphate ion in the bowel to form a highly insoluble aluminum phosphate in the intestinal tract, which is entirely excreted as such in the stool. Treatment of calcium oxalate stones is difficult, because an exogenous as well as an endogenous source of oxalate exists and precipitation of such calculi can occur in urine that is either acid or alkaline. The most satisfactory form of therapy consists of a diet low in calcium and oxalate. In addition, experimental evidence suggests that the addition of magnesium trisilicate to the diet is advisable. The diets mentioned above are described by Greene (*Urolithiasis*, in Conn, H. F. Current Therapy 1953, Philadelphia, W. B. Saunders Company, 1953, p. 441). Finally, certain general measures are advisable for patients with urinary calculi. A daily urinary output of 2,000 to 3,000 cc is the most important single factor. There is some evidence that daily administration of vitamin A (50,000 units) and thiamine chloride (3 mg) is helpful. A determined effort should be made to eradicate infection of the urinary tract with suitable antibacterial agents.

DIFFICULTY IN TREATING "SIMPLE ANEMIA"

TO THE EDITOR—I have been having difficulty treating simple anemia. For the past year, remedies that heretofore have helped these patients are failing to give results. Adequate amounts of ferrous sulfate and ascorbic acid do not seem to build up and maintain the hemoglobin and red blood cell levels. Liver extract injections sometimes give temporary improvement, but an exacerbation occurs during treatment with a minimum of two injections of 1 cc each a week. Vitamin B₁₂ given every other day also has failed to produce improvement. Is there anything different in the food available today? Could this situation be due to permeation of the air with residue from the explosion of atomic bombs? Other physicians in this community are having the same difficulty. Suggestions on treatment of these patients will be greatly appreciated.

M.D., Indiana

This inquiry was referred to two consultants, whose respective replies follow.—Ed

ANSWER—It may be presumed that the term 'simple anemia' refers to the hypochromic, microcytic anemia most commonly associated with a deficiency of iron. Chronic or repeated acute loss of blood is most frequently the cause, although nutritional deficiency and other conditions, such as malignant disease, may complicate the problem. Insufficient data are given on the dosage of iron used, the dietary intake, the cause of the anemia, and the variations observed in the blood cell counts and hemoglobin levels to permit specific answers. The following suggestions may help solve the problem. Administration of large doses of iron is often, and perhaps usually, necessary to maintain normal blood levels. Not less than 18 gm daily of any of the commonly available iron salts, given in divided doses, is desirable. A diet containing generous amounts of protein, vitamins, and iron should be followed. Any possible sources of blood loss should be carefully sought and eliminated, if possible. Of the less common sources, esophageal hiatus hernia, hemorrhoids, malignant lesions, and lesions of the genitourinary tract must be considered. Finally, the blood levels must be determined accurately, with standardized equipment and the greatest care.

in technique being used as insurance that variations in the blood values are real and are not due to technical errors. Liver extract and vitamin B₁₂ are not specifically indicated in this variety of anemia, although they may enhance the utilization of iron or the nutrient substances necessary for blood building in some persons. It is highly unlikely that the blood of persons other than those in close contact would be affected by atomic bomb explosions.

ANSWER—There is no possibility that the intermittent presence of radioactive residue from atomic bomb test explosions could have any bearing on anemia. After an atomic bomb explosion, the radioactive particles gradually descend to earth. Detailed and repeated measurements of their radioactivity have been made, and at no time has a level capable of affecting the hematopoietic system been observed. Actually, the amounts of radiation so received would be only a small fraction of the radiation received in a routine fluoroscopic examination.

NERVOUS INDIGESTION

TO THE EDITOR—A woman, aged 26, has complained of gas in her abdomen since 1949. She obtains some relief from belching but obtains more when she passes flatus. Repeated examinations have shown increased peristalsis. Gastrointestinal studies done in 1950 showed a moderate sized diverticulum of the lesser curvature of the cardiac portion of the stomach which retained the dye in the 24 hour film. The colon was extremely ptotic. Treatment has consisted of use of antispasmodics and methantheline (Banthine) tablets, correction of constipation and use of abdominal supports. Could the diverticulum cause these symptoms? What further treatment would you suggest?

Thomas W. Kredel, M.D., Indiana, Pa.

ANSWER—Diverticula of the stomach are rather rare. They occur usually at the cardiac end of the stomach on the lesser curvature near the cardia. Usually they do not give rise to symptoms and are found accidentally. These diverticula usually do not retain food and rarely exceed the size of a quarter or of a silver half dollar. The symptoms described, flatulence, gas, and intestinal spasm, are those of nervous indigestion and cannot be attributed to the diverticulum of the stomach. Treatment should consist of a diet restricted in starchy foods, sugar, and leguminous vegetables, nervousness can best be controlled by Pavatrine (β -diethylaminoethyl fluorene 9-carboxylate hydrochloride) with phenobarbital, one tablet after each meal. Constipation may be relieved by a liquid petrolatum preparation reinforced with phenolphthalein.

RECURRENCES OF RHEUMATIC FEVER

TO THE EDITOR—What is the accepted procedure in the prevention of recurrences in patients who have had one or more attacks of rheumatic fever?

M.D., New York

ANSWER—In the light of the pathological findings and the clinical course of rheumatic fever, the disease, in its subclinical episodes, should be regarded as a chronic hypersensitive state in which there is a great tendency to relapse, especially during childhood. Hygienic living conditions, understood as housing, clothing, and nutrition, are of primary importance. The predisposing environmental factors deserve more than casual, general advice (Traut, E. F. *Rheumatic Diseases, Diagnosis and Treatment*, St. Louis: C. V. Mosby Company, 1952, p. 425). A susceptible person, especially a child, should secure adequate rest and proper food, especially adequate amounts of protein. The patient should be protected against chilling and against contact with patients ill from or convalescing from acute respiratory tract infections. An environment with a warm climate and a low altitude, especially during winter and spring, is preferable. A reasonable intake of vitamins, such as are afforded by cod liver oil and citrus fruit, is desirable.

Removal of the palatine tonsils can be recommended in a patient having repeated sore throats, although tonsillectomy is no longer routinely employed as a preventive measure.

Vaccines made from hemolytic streptococci or from the throat flora of patients with acute rheumatic fever have been used. Institutionalization of persons susceptible to rheumatic fever may afford proper food, housing, and observation but is detrimental from the epidemiological standpoint, it places persons of like susceptibilities in close contact. Institutions also fail to meet the psychic necessities of childhood. Currently, attempts are being made to prevent infection with hemolytic streptococci and are reportedly successful. Administration of 0.5 gm of sulfadiazine daily to children and 0.5 gm twice daily to adults is recommended. More recently, 100,000 units of penicillin given orally daily before breakfast or 800,000 units of penicillin given daily for the first week of each month have been advocated as a means of keeping the pharynx clear of hemolytic streptococci. Administration of these drugs has been continued in such doses up to puberty. Besides the expense and tedium of carrying out such a prophylactic program, questions of its efficiency, expense, and possible harm must be thoughtfully considered. All of these measures take on increased importance the younger the subject and the more recent the evidences of active rheumatism.

ELECTRIC ARC WELDING

TO THE EDITOR—At what distance is electric arc welding harmful to a bystander's (not the operator's) eyes in broad daylight and under normal shop conditions?

Jacob L. Greenberg, M.D., Newark, N. J.

ANSWER—Within any harmful distance, the duration of exposure may be of greater consideration than the distance itself. Not all ultraviolet emanations from arc welding are the same. The output increases with amperage, which varies enormously. By some investigators, 200 ft. is accepted as a minimal distance for unprotected exposure for workers other than the operator or for bystanders. Regardless of the intensity of surrounding illumination, the output of ultraviolet light remains the same. Since eye damage from ultraviolet rays chiefly is to exterior structures, such as the cornea, the state of surrounding illumination is of no real consequence. On a bright, sunny day, the ultraviolet rays of sunshine would be added to those from the arc, but this is of little consequence. Only to a slight extent do ultraviolet rays reach the retina. To that extent, the size of the pupil is of some consequence for a single flash. Since in the inside of a plant the illumination is likely to be lower than on the outside, the size of the pupil may be larger and, consequently, slightly more vulnerable. For practical purposes, workers other than the operator at a distance greater than 50 ft. are ordinarily adjudged not to need eye protection, even though the exposure is continuous. It should be kept in mind that the introduction of protective barriers does not necessarily assure safety, because reflected rays sometimes are injurious.

INFLUENZA VACCINE

TO THE EDITOR—Is the routine use of influenza vaccine advisable?

Chancellor H. Whiting, M.D., Oneida, N. Y.

ANSWER—The routine use of influenza vaccine is thought by many not to be advisable except perhaps when an epidemic threatens. Maximum protection from influenza vaccine takes about two weeks to develop and, during an epidemic season, most persons may already have been exposed to the virus prior to preventive inoculation. It is believed that the vaccine offers adequate protection for a relatively short time, probably only three or four months. Little if any crossing of immunity between known major types of influenza virus has been reported. Therefore, it is necessary to know that the type of virus causing a particular influenza outbreak is contained in the influenza vaccine used to protect against this illness, and a polyvalent vaccine may help do this. Furthermore, there have been reports of sensitivity to the vaccine, so that there may be occasional reactions to this material if it is used routinely. There may be circumstances under which the physician may wish to use the vaccine for individual patients and for groups.

OVERWEIGHT AND LONGEVITY

TO THE EDITOR—*The literature indicates that the longevity of obese persons is considerably less than that of nonobese persons. Are there any studies that indicate that obese persons who have reduced their weight have thereby increased their life expectation and their protection against diabetes and circulatory diseases?* M.D., Rhode Island

ANSWER—A mortality study of overweight persons by Dublin and Marks of the Metropolitan Life Insurance Company in 1951 (*Tr A Life Insur M Dir America* 35:235, 1952), showed long range benefit from weight reduction. This study was based on persons who were limited to substandard insurance solely because of their weight. The study covered persons of this kind insured during the years 1925 to 1934 and traced to 1950. The mortality of all overweight persons in the study was significantly higher than that of standard risk persons. Out of this general experience, a separate study was made of those overweight persons who subsequently showed a reduction in weight sufficient to qualify them either for standard insurance or a lower rating than they had been given originally. Among both men and women the death rate after weight reduction was substantially less than that for all of the overweight persons studied. Among the men, the reduction was of the order of one fifth and among the women about one third. While these findings cannot be definitive, they are most significant. This is perhaps the best evidence produced to date that weight control pays and is also the most practical approach now available to the problem of preventing or retarding major degenerative diseases of middle and later life.

PAINFUL TOE

TO THE EDITOR—*A 52-year old man has had severe pain in the medial aspect of the dorsum of his right big toe for one year. It is most annoying during the night, preventing him from sleeping. No sensory changes or evidence of a lesion of the toe are present. He gives a history of treatment for syphilis 10 years ago. A blood Kahn test gives a positive reaction at 1:4 dilution. Neurological examination shows no abnormality. Division of a portion of the digital nerves to the toe on the dorsum of the foot relieved the pain for a week. The patient is receiving penicillin for his syphilis. Is the pain a manifestation of syphilis? If not, what cause and what treatment are suggested?*

John Clough, M.D., Massena, N. Y.

ANSWER—The only lesion of syphilis that is suggested by nocturnal pain in the big toe is a lesion involving the metatarsal or phalangeal bones. If a roentgenogram shows syphilitic periostitis or osteitis, the diagnosis should be obvious. Other possibilities are gout and rheumatoid arthritis. Pertinent laboratory tests for these two diseases, including determination of the blood uric acid level and the corrected erythrocyte sedimentation rate, should be done. A remote possibility would be diabetic neuritis, to exclude this, the urine should be examined for sugar, and a fasting blood sugar level determination should be done. Finally, if no adequate medical cause is found for this complaint, the possibility of anterior metatarsalgia must be considered.

SNAPPING IN JOINTS

TO THE EDITOR—*Please explain the audible snapping that occurs in joints (especially knees) that are otherwise normal. The sound is not accompanied by discomfort and usually appears in persons past the third decade.*

Frederick J. Balsam, M.D., Memphis, Tenn.

ANSWER—Audible snapping in joints, especially the knees, that are normal is due to thickening of the synovial membrane folds, loose bodies, or fringes in the joint. This may occur in young adults as well as those in the third decade.

METASTASIS FOLLOWING RADICAL MASTECTOMY

TO THE EDITOR—*A patient had a radical mastectomy for carcinoma of the breast one month ago. The incision is not yet completely healed. The pathological report is medullary carcinoma with metastasis to the axillary lymph nodes. There are no clinical signs of metastasis. Is x-ray therapy indicated for preventing recurrence?* M.D., Pennsylvania

ANSWER—Delayed healing after radical mastectomy is usually due to a relatively inadequate blood supply to the skin because of the nature of the operation, however, when advanced carcinoma of the breast is attacked surgically, the tumor can recur locally before healing is complete, and this possibility must be kept in mind. Should any suspicious looking tissue appear in the wound, biopsy is indicated. X-ray therapy would be indicated in this patient not only because of the possibility of persistent local disease but also because metastasis to the axillary lymph nodes has already occurred.

AMEBIC DYSENTERY

TO THE EDITOR—*Twenty eight years ago a patient lived in Venezuela for three years and had an attack of amebic dysentery. He was treated there with emetine hydrochloride. Three months ago he had an acute attack and was ill for several days. He was given emetine hydrochloride for three weeks and then chloroquine phosphate. His stools have been negative for ameba for 8 to 10 weeks. I would like to know whether this is a flare-up of the previous infection or a new infection. Amebic dysentery is rare in this community.*

John R. Thomas, M.D., Corpus Christi, Texas

ANSWER—If this patient was free of ameba, as indicated by repeated stool examinations, and free of symptoms of the condition for 28 years, the present attack would be considered a reinfection. This would represent the consensus of all workers with a large experience in the management of amebiasis.

BOOSTER TETANUS INJECTION

TO THE EDITOR—*Last autumn a 5½ year-old child had an attack of giant hives associated with transitory faintness. He ate lobster a few days prior to this episode. Otherwise he has never shown signs of allergy. He should have his booster injection for tetanus or preferably for diphtheria and tetanus this spring. Is he likely to have any untoward reaction? What precautions should be taken?*

Henry Korchmal, M.D., Meriden, Conn.

ANSWER—For the patient cited it is doubtful whether any severe reaction would be caused by a booster dose of diphtheria and tetanus toxoids. Nevertheless, it is well to observe caution. A Moloney skin test may indicate whether there is sensitivity to toxoid, however, intracutaneous injection of 0.1 cc. of the combined toxoids, plain, should be satisfactory for a booster. With this method, the possibility of the occurrence of unpleasant reactions is greatly diminished.

LABORATORY-ACQUIRED ANTHRAX

TO THE EDITOR—*We have a bacteriologist with anthrax, self inoculated in the laboratory, with the lesion just above the left eyebrow. We should appreciate knowing how often such laboratory infections with anthrax have been reported.*

M.D., Pennsylvania

ANSWER—At least 30 instances of laboratory acquired anthrax have been recognized in the United States as disclosed by a survey made in 1950 (Sulkin, S. E., and Pike, R. M. *Am J Pub Health* 41:769, 1951). The majority of these occurred in one large laboratory engaged in special studies and have been described in the literature. Most of the 30 infections were cutaneous, and only one was fatal. The suspicion that one infection was acquired by handling stained smears was supported by demonstration of viable bacilli on such smears.

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CLINICAL EVALUATION OF PREFRONTAL LOBOTOMY

Lawrence C. Kolb, M.D., Rochester, Minn.

A survey made by the National Institute of Mental Health indicates that by the end of 1949 about 10,000 persons in the United States had undergone lobotomy or some form of surgical ablation of the frontal lobes of the brain for mental illness. The number of operations of this type had increased annually during each of the five preceding years. Thus, the interest in lobotomy has gained momentum since the procedure was introduced by Egas Moniz late in 1935.

The extensive surgical, anatomic, physiological and psychological studies that have emanated from the investigation of patients treated by this method have led to the collection of considerable new knowledge in regard to the functions of the frontal lobe and also have made apparent many deficiencies in that knowledge, for example, the majority of psychological techniques in use at present in the study of such patients are incapable of yielding information about deficits in intelligence on a high level that result from the operative procedure, although the failures in social adaptability and abstract thinking are evident to close family observers, social workers, and clinicians. In addition, physicians have been made aware of weaknesses in knowledge of the usual outcome of mental illnesses and of the noncritical manner in which therapeutic claims are frequently made in the field of psychiatry. Most of the reports on results of lobotomy published prior to 1947 failed to indicate whether the patients so treated were hospitalized or to give the duration of illness and hospitalization prior to lobotomy. No comparisons were made between the results obtained by lobotomy after long periods of follow-up and the known expectations for patients who did not undergo such operations. In some reports, outcome was defined successfully by stating the occupational adjustment of the patients, however, observations on the preoperative and preillness status of the patients were not made. In other reports, the outcome has been defined in terms of modifications of specific behavioral problems. From review of these reports it became apparent that the earlier statistical methods practiced in reporting of the outcome of the use of prefrontal lobotomy provided an

illusory impression of the worthiness of the procedure that could not be confirmed by comparison of the data available with earlier statistics on the long-term expectations in psychiatric illnesses. Detailed case reports, including long periods of postoperative observation, did suggest that many chronically ill patients were restored to a productive life in the community as a result of this surgical procedure. Even from these reports, it is not possible to decide what proportion of patients benefited as the result of the operation and what proportion benefited as the result of preoperative attention, which has a psychotherapeutic effect. The indication that the latter factor cannot be ignored was made apparent in the Greystone Park investigation of topectomy, in which 3 of 24 chronically ill control patients, who were treated in every respect as the group that were subsequently operated on, recovered sufficiently to be paroled from the hospital at the same time that 9 of 24 patients who were operated on were paroled. Later reports showed that 7 of the control group and 8 of the group operated on were out of the hospital. Also, necropsy that failed to show any significant lesion in the brain of a recovered patient who had presumably undergone lobotomy has been reported.

On the basis of my earlier critical review, it was suggested that the field of psychiatry might profit by adopting the suggestion of Penrose, namely, that reports of the outcome of therapy be withheld until five years have elapsed after termination of treatment. This technique has been adopted with success by surgeons and radiologists in judging the therapeutic effectiveness of treatment for malignant processes.

In the past five years data have accumulated that allow a much better appraisal of the value of prefrontal lobotomy. Many of the questions unanswered in 1947 have now been clarified, although new problems have arisen through the application of such modified techniques as transorbital lobotomy, topectomy, thalamotomy, undercutting of the cortex, and anterior cingulectomy. Since these procedures have not been used over a sufficient period to allow satisfactory evaluation of their therapeutic potentialities, it has been decided to avoid discus-

sion of them at this time. The intent is, rather, to examine and discuss the indications for lobotomy, the available knowledge of its usefulness, and the known common complications of the procedure.

INDICATIONS FOR LOBOTOMY

Lobotomy has been recommended extensively in the treatment of the hospitalized psychotic patient, with the ultimate aim of effecting a social recovery outside the hospital. It also is used for the control of the dangerously suicidal, assaultive, or destructive patient in whom social recovery is unlikely. The procedure has been done on overactive psychotic patients who have physical disease, such as tuberculosis, that may be seriously influenced by the behavioral abnormality. It has been applied in the treatment of the ambulatory, nonhospitalized, psychotic patient and various types of neurosis. It has been used for psychopathic states, drug addiction, organic behavioral disturbances, and intractable pain of physical or psychic cause. It is generally recognized that lobotomy provides only modification of certain symptoms. It is not a specific therapy in any sense. This is clearly demonstrated in such reports as those of McLardy and Davies, who have found that relapse may occur, with recurrence of all symptoms noted preoperatively, even when as extensive a procedure as bilateral prefrontal lobectomy is performed.

There seems to be fairly general agreement that certain specific symptoms are more likely than others to be modified by lobotomy. Suicidal tendencies, refusal of food, depression, anxiety, hypochondriasis, assaultiveness, destructiveness, impulsiveness, and overactivity are likely to be influenced favorably by lobotomy in more than 75% of the cases. Delusions and hallucinations are less likely to be modified, although the patient does not respond with as great emotion to the disordered thought process. Apathy, indifference, withdrawal, untidiness, or inappropriate emotional responses of long standing are behavioral patterns that are seldom modifiable by this procedure and are considered by some as contraindications for the operation. Certain features suggest a favorable outcome from lobotomy for the illnesses of certain hospitalized psychotic patients. These are sudden onset of illness, short duration of symptoms, a good prepsychotic personality, and plasticity of symptoms, however, experienced psychiatrists have long been aware that these factors indicate a favorable outcome even with conservative treatment.

There is, at present, a growing insistence by some that lobotomy be performed as early as possible in order that patients may obtain the benefit of the operation before symptoms become fixed. It is true that few patients with chronic psychotic processes respond, and the hopes of therapeutic success in such patients frequently are not realized. There seems little justification at this time for supporting the contention of those who press for early operation. The reason for this point of view is easily demonstrated. Penrose, in his study of outcome of various therapeutic methods used in the public mental hospitals of Ontario, Canada, over a five year period, found that at the end of one year about 50% of the hospitalized, psychotic patients who were not treated by shock had been discharged from the hospitals. At the end of two

years this figure was almost 60%. Few discharges took place in this group after the end of the second year. There is, at present, no way of selecting the 60% of psychotic patients who will recover with conservative care during the first two years of hospitalization. Those who advocate lobotomy prior to the end of the second year of hospitalization have not had sufficient experience to justify the use of the procedure on the 6 of 10 patients who will recover sufficiently without operation. Those who contend that lobotomy is often delayed too long do, however, have a point. Several excellent follow-up studies indicate that patients who have been hospitalized for more than five years are unlikely to receive much benefit from the procedure, although in some instances behavior in the hospital may be more circumspect after operation.

Lobotomy seems to offer a better opportunity for increasing the rate of discharge of patients hospitalized for more than two years. This fact is attested by several recent reports. That from Pilgrim State Hospital, New York, by Worthing and his associates, showed that a 10% release rate continues into the 12th year of hospital life when lobotomy is used. Yet, the quality of remission is much less satisfactory in patients operated on late in the course of their illness.

SELECTION OF PATIENTS

The following factors must be considered in selection of patients for lobotomy. A major factor working against the social reintegration of the patient who has had a lobotomy, as with any mental patient, is the attitude of the family or those on whom he is dependent. This factor has been commented on by many. The willingness of the family to accept, support, and direct the rehabilitation of the patient who has undergone lobotomy and shows the exaggerated dependence so commonly the result of the brain lesion is of such importance that the Greystone Park investigators of topectomy had their social workers develop a rating scale to evaluate the responsibility of the family for their relatives. Interviews with the family to explain the personality changes that occur after lobotomy are recognized as a necessity to effect a favorable extrahospital outcome. The failure of the family to adjust to the returned patient often results in his readmission to the hospital. In some instances, this failure is due to the continuing existence of the psychosis or to appearance of symptoms secondary to the frontal lobe lesion indicative of social irresponsibility that few families can tolerate.

The varying effects of the return of such patients to their families have been described in several articles. Partridge reported on the rehabilitation of a family following operation on the psychotic member. Koskoff, on the other hand, indicated that a family's equilibrium was disturbed by the changed behavior of a wife who was successfully relieved of a chronically painful condition by prefrontal lobotomy. The anxiety caused by her outspoken and unpleasant postoperative behavior induced disturbances in her husband and daughter that led to their respective breakdowns with a gastric ulcer and schizophrenia. The difficulties of family acceptance of the patient treated by lobotomy have been discussed also by various social agencies.

Probably the most important single factor in selection of a patient for lobotomy is evidence that he is responding emotionally to his environment. Patients who offer a series of desperate complaints, who are aggressive, anxious, or restless, or who betray evidence of disturbed autonomic functions, such as large pupils, dry tongue, tachycardia, or cold, moist hands, are more likely to benefit than those who are withdrawn, apathetic, and dull. Certain rating scales of behavior have been devised in an attempt to estimate the patient's potential for recovery.

Another matter of prime importance that must be considered before the decision to operate is made is the occupational status of the patient prior to the onset of his illness. It has been the common experience that those who are employed in simple occupations are more likely than others to return to a similar form of work after lobotomy. Freeman and Watts early stated that no physician, dentist, artist, musician, or writer had resumed his profession after lobotomy. The inability of those whose skills demand a high degree of social adaptability, tact, and creativeness to return to their chosen work is probably the result of the deficit induced by the frontal lobe lesion. In the past few years, the return of a few nurses and physicians to gainful employment after lobotomy has been reported, but whether the level of their activity is as high as that prior to operation is not easy to ascertain. It is a serious matter, indeed, to recommend frontal lobotomy as treatment for anyone with particular social or creative talent if there is any hope of recovery through more conservative measures.

The age, sex, religion, and education of the patient have not been found to have major significance in the selection of patients for operation, although the existence of cerebral degenerative processes in the elderly patient suggests a poor outcome. It is of interest that twice as many women as men have undergone this operation in the United States.

EFFECTIVENESS OF LOBOTOMY

When the effectiveness of lobotomy for treatment of specific reaction types is considered, there seems to be a general conviction that the procedure is of most value in the treatment of the less disruptive personality disorders, such as obsessive and compulsive states, certain hypochondriacal reactions, and the involutional depressions. Manic-depressive psychoses respond more favorably than do schizophrenic reactions, however, a study of the number of patients operated on in each category compiled from seven recent reports with follow-up investigations showed that about 60% of the patients had schizophrenia, 25% had affective psychosis including the involutional states, 10% or less had obsessive, compulsive neurosis, and the remainder had scattered conditions, including psychoneurosis, psychosomatic conditions, psychopathic states, organic psychoses, mental defects, epilepsy, and painful conditions.

Prefrontal lobotomy has not been shown effective in relieving schizophrenia. Experience makes it clear that it offers little to the vast majority of patients who form the bulk of the patient load in our mental institutions. This is due to the fact that most of them fail to have the symptoms, previously mentioned, that are generally affected

by the procedure. Yet the procedure has led to the return to the community of a number of schizophrenic patients who had been hospitalized for two or more years and who were unlikely candidates for discharge. Furthermore, it is generally agreed that the use of lobotomy in chronically disturbed and destructive patients often has led to subsidence of such behavior. Such symptomatic modification has eased the burden of hospital management, even though social readjustment with discharge has not always ensued. The suggestion that our state institutions will be emptied by the use of the procedure should, however, be considered an expectation that cannot be fulfilled.

Opinions differ with regard to the type of schizophrenic reaction most likely to be benefited by the operation. Some state that the periodic catatonic type responds best and that the hebephrenic, paranoid, and simple reaction types respond less well in the order mentioned. Others have reported better success with hebephrenic and paranoid reactions. This difference in opinion is perhaps due to the well-known variations in diagnostic criteria for schizophrenia and its subgroups from one hospital to another and the fact that patients with this illness may manifest from one time to another during its course catatonic, hebephrenic, or paranoid symptoms.

The quality of the improvement obtained by prefrontal lobotomy is best illustrated in the follow-up study by Partridge, who personally reexamined 158 schizophrenic patients treated by psychosurgery. Of 74 patients initially discharged from the hospital, 16 were still psychotic at time of dismissal, 2 of whom had relapses, 16 showed psychotic traces at time of dismissal, 2 of whom had relapses. Thirty-six were discharged as recovered, 7 of these had relapses and 4 recovered after the relapse. Six psychotic patients were discharged against advice. In other words, while 46.8% were discharged from the hospital, many still manifested evidence of the psychotic process. The eventual adjustment of such discharges is worthy of further study at a later date. A number will be returned to the hospital when their dependent needs cannot be met by their families and the community. It is of interest that of the original 19 schizophrenic patients operated on under the direction of Moniz, only 3 were well 12 years later, initially, 5 were discharged in remission.

While five years ago relatively few patients who had manic-depressive psychoses had been treated by psychosurgery and followed for any period, now a significant number have been observed. The extremely variable course of this illness makes any evaluation most insecure. Certain impressions are available, however. The outcome is more satisfactory among patients with predominantly depressive illness in whom the duration of the attacks is reduced, their severity mitigated, and periodic recurrence fragmented. The existence of manic features is an ominous sign so far as expectation for social recovery is concerned. The poor outlook for the elated patient is not modified whether the surgical procedure is performed during or between manic phases. The procedure does not fully control either phase of the manic-depressive psychosis, but manic behavior is less commonly modified. Furthermore, patients with manic-depressive psychosis who have aggressive thoughts prior to lobotomy are likely

to have frank antisocial behavior following it. In Stengel's study, only 5 of 75 patients failed to reveal features of a frontal lobe syndrome after operation. To many, the personality distortion caused by this syndrome is not considered of major significance in comparison to the gross symptoms of the illness for which the operation is performed.

The so-called involutional psychoses have responded well to prefrontal lobotomy. Of 273 patients treated by five different groups, 61% were able to leave the hospital. The obsessive-compulsive neurosis also responds to prefrontal lobotomy. Some patients have been reported relieved of their obsessive thoughts and compulsive behavior after operation, while others maintain their symptoms but no longer are so driven by them. Occasionally persons with obsessive-compulsive neurosis may become aggressive after lobotomy and exhibit the behavior pattern reminiscent of the antisocial psychopath. Patients with this neurosis, when treated by psychoanalytic methods, show a rate of improvement equally as impressive as that from lobotomy. If psychoanalysis is practicable, it should be advised before lobotomy is considered. Psychoanalysis by its nature is limited to patients who are reasonably intelligent, who are within rather narrow age limits, and who live in areas in which this therapy is available. Lobotomy may be considered when psychoanalysis has proved ineffective or when this treatment is not available. Lobotomy is a doubtful procedure in the treatment of obsessive-compulsive neurosis in which the person is capable of an active and productive social and occupational life.

In general, the treatment of the antisocial or sexual psychopath has not been successful. On the other hand, there have been reports of modification of deviant antisocial or sexual behavior. The probable explanation for the differing response may lie in the force motivating the type of behavior. In the psychopath whose deviant behavior is an expression of failure to develop a good conscience, the frontal deficit produced by operation, which usually lowers inhibitions, only leads to exaggeration of previous unfavorable behavior traits. On the other hand, when antisocial behavior is an expression of a compulsive drive arising as a substitution for some deep-seated unconscious conflict, the surgical procedure may lead to a lessening of this drive and, therefore, of the aberrant behavior trait. It is possible that better selection of patients on the basis of the psychic causation of their behavior may lead to a more successful, though circumscribed, range of usefulness of lobotomy in treatment of those with antisocial behavior.

The question has been raised as to whether lobotomy leads to deviant sexual activity in patients who had not displayed sexual abnormalities before. The eruption of homosexual behavior in both men and women has been observed following prefrontal lobotomy. Exhibitionism occurred in several patients after operation, and pedophilia occurred in another. It is not clear whether these patients expressed their aberrant sexual drives prior to operation or whether they became evident first in the postoperative period.

In a detailed study of sexual activity in 40 patients Levine and Albert found that 4 showed aberrant sexual

behavior in the postoperative period that involved them in social difficulties. One, a sexual psychopath before the onset of psychosis, returned to promiscuous behavior after operation. Another who had not been a social problem before operation became one. Two other patients who remained psychotic were in constant difficulty owing to their sexual verbalizations. In their series, homosexuality "did not arise anew" after operation. Levine and Albert concluded "that the predominant prelobotomy mode of sexual activity was maintained after lobotomy."

The successful treatment of patients with persistent pain by transection of the thalamofrontal radiations is probably the most significant new contribution to medical knowledge that has evolved from lobotomy. The observation that such patients no longer complain of pain although they retain their ability to perceive painful stimuli has emphasized the complexity of the problems of pain. Freeman has stated that few patients relieved of unbearable pain of organic disease have made good social adjustments following lobotomy. The procedure has been used with success to relieve the intractable pain of carcinoma, the thalamic syndrome, neurological states including tabes dorsalis, and the painful phantom. Unilateral lobotomy is often successful in the treatment of such conditions. Unilateral lobotomy has failed in patients who, in addition to having a known organic cause for their symptoms, also show evidence of a psychogenic disturbance. Yet, bilateral lobotomy succeeded in relieving pain in most patients in whom both physical and emotional factors contributed to the painful symptom. It is my impression that the decision to employ this procedure or the decision to undertake initially a unilateral or bilateral operation should not be made in any case until careful psychiatric evaluation has been carried out. Furthermore, such an evaluation should be made of any patient with a chronic painful condition before any neurosurgical procedure is undertaken. In some instances in which the pain is primarily caused by a physical lesion, lobotomy is initially preferable to chordotomy or neurectomy. In other instances, the opposite conclusion may be drawn as the result of a good neuropsychiatric study.

Prefrontal lobotomy is an effective form of treatment for patients whose painful complaint represents a part of a severe obsessive-compulsive neurosis or a psychotic state when these conditions have proved refractory to other forms of treatment, such as psychotherapy or electroshock therapy. In general, its use seems inadvisable for patients with hysterical or traumatic neurosis whose painful symptoms are frequently intermittent and seldom entirely incompatible with a reasonable social adjustment. The procedure is not to be recommended for psychoneurotic depressive states or obsessive states associated with pain and even addiction when the patient is found to be carrying important responsibility in business or at home. It is dubious whether it should be used when the patient with pain is managing successfully outside the hospital but is isolated, without relatives or friends, since the operative procedure may lead to such a severe reduction in productive capacity and such an increase in dependence that institutionalization may become necessary.

Procaine hydrochloride block of the frontal poles through a transorbital wound has been of aid in the selection of patients for whom prefrontal lobotomy may be indicated to relieve intractable pain. With relief of pain by prefrontal lobotomy it has been possible to withdraw narcotic drugs from patients addicted to them, provided this measure was instituted immediately after operation. Careful studies have shown that the symptoms of physiological dependence on narcotics, known as the abstinence syndrome, do occur when withdrawal of the narcotic is performed, although they are somewhat less intense in the immediate postlobotomy period. This is a matter of some importance. Sudden withdrawal of narcotics in a person strongly addicted may lead to serious abstinence symptoms in the postoperative state, which could be overlooked owing to the patient's failure to complain. At present there is no satisfactory means of assessing the value of prefrontal lobotomy in the treatment of other neuroses. Suffice it to say that satisfactory outcome may result from more conservative intervention.

RESULTANT COMPLICATIONS

The major complications that result from prefrontal lobotomy are as follows: the frontal lobe syndrome, convulsive disorders, urinary disturbances, certain surgical complications, and even death. The general practitioner may be called on to provide advice in regard to the indications and limitations of the procedure as well as to diagnose and manage these complications. It has been stated that lesions of the frontal lobe accentuate the basic features of the individual personality. Thus, patients who have been shy and withdrawn most of their lives may become more socially aloof. Persons with a personality leaning toward hypomania may show increased aggressiveness. The person who had a satisfactory social adjustment in the prepsychotic state is most likely to make the best adjustment after operation.

The most conspicuous and most disturbing deficit that has been observed as the result of prefrontal lobotomy is that best perceived by the patient's close relatives or friends and manifests itself in the patient's social behavior. Lack of tact is a frequent postoperative phenomenon, and the various uncouth, blunt, or facetious remarks made by the patient may become a source of embarrassment to the family. The patient's sense of personal responsibility for social behavior is lowered. Some degree of emotional dulling takes place. Judgment suffers considerably. The patient may no longer consider a group of related factors and come to a well-thought-out conclusion. Abstract reasoning and the ability to synthesize are impaired. Ability to plan activity beyond simple habitual routine suffers. Initiative is depressed.

The mortality rate from the operative procedure has varied from 3 to 6%. Postoperative convulsive disorders occur in 3 to 12% of patients. If a second lobotomy is performed, the incidence of convulsions is increased. Causes of death have been cerebral hemorrhage (especially from the anterior cerebral artery), abscess, meningitis, atelectasis, and pneumonia. The acute complications are generally recognized and treated during hospitalization. Occasionally, the physician may be called on to recognize a subdural hematoma or a brain abscess that may have become manifest some time after

the operation. The symptoms of these conditions are the same as those when the lesions are due to other causes. The postoperative management of convulsions may be necessary.

Although the family physician may have little to do with the immediate postoperative care of the patient who has had a lobotomy, he may be responsible for long-term home care. He may be required to decide what measures should be taken in regard to the unusual behavior of the patient that has become embarrassing to the family. The patient's disturbance may, for example, become manifest in some socially unacceptable behavior, or he may be considered "dangerous" to the community for one or another reason. If there is grave cause for alarm or if the family is unwilling to accept responsibility, institutional care is indicated. The recurrence of the original psychotic symptoms is also an indication for advising this step.

The question of the daily program of activity needed to aid in the patient's readjustment may be presented for consideration. A comprehensive, yet stimulating schedule of daily activities has been found to assist the readjustment process. Such a schedule includes regular hours for meals, set personal and household routines, physical activity, recreational pursuit, work, hobbies, and even simple habit retraining for patients who exhibit difficulty in managing their toilet and bathroom habits. Return to his occupation may be attempted after a satisfactory home adjustment has been made. Few who have not returned to work within a year are likely to be profitably employed. Some of these may, however, be able to contribute productively in a less demanding occupation or by assisting with housework at home. Often a simple explanation to a prospective employer by the physician will do much toward obtaining a satisfactory job adjustment.

SUMMARY

Prefrontal lobotomy has proved, over 15 years' experience, to be a useful therapeutic procedure in the treatment of certain emotional disorders and cases of intractable pain. It is symptomatic therapy that has proved most effective in relieving destructive drives, chronic depression and obsessions, hypochondriasis, impulsiveness, and overactivity. It seems to promise return to the community of a greater number of patients with chronic mental disease who have been hospitalized for more than two years than does any other therapeutic procedure. Relapse, with full recurrence of the symptoms of the original mental illness, may occur after prefrontal lobotomy. There is evidence that patients who have undergone lobotomy are more sensitive to environmental stress after operation than before. While most patients show evidence of deficit due to the lesion of the frontal lobe, this defect often is not as disturbing as the emotional illness they had. Other complications frequently encountered are convulsions and urinary incontinence and urgency. The general practitioner may be called on to advise the family in regard to the indications for operation and the limitations and complications of the procedure. He may also assume active responsibility for care of such complications and assist the family in the rehabilitation of the patient at home and in the community.

CORONARY DISEASE AMONG UNITED STATES SOLDIERS KILLED IN ACTION IN KOREA

PRELIMINARY REPORT

Major William F Enos, Lieut Col Robert H Holmes (MC), U S Army
and

Capt James Beyer (MC), Army of the U S

The purpose of this paper is to describe and analyze the gross lesions found in the coronary arteries of United States soldiers killed in action in Korea. The histology will be discussed in detail in a subsequent paper as will such pertinent data as race, body build, and personal habits.

MATERIAL

Recently 300 autopsies were performed on United States battle casualties in Korea. Most of these soldiers were killed in action or suffered accidental death in front line areas. The coronary arteries were carefully dissected in all cases. No case in which there was known clinical evidence of coronary disease was included in this series.

The average age in 200 cases was 22.1 years. The ages in the first 98 cases were not recorded except that the oldest patient was 33. In the entire series, the youngest recorded age was 18 and the oldest 48.

FINDINGS

In 77.3% of the hearts, some gross evidence of coronary arteriosclerosis was found. The disease process varied from "fibrous" thickening to large atheromatous plaques causing complete occlusion of one or more of the major vessels (table 1).

Occlusion was considered complete only when the plaque had no free surface and was fused to the wall opposite its point of origin. A conservative attitude in estimating the amount of luminal narrowing was maintained throughout. No actual measurements were made.

TABLE 1—Percentage of Cases Showing Varying Amounts of Luminal Narrowing

Amount of Luminal Narrowing	% of Cases
"Fibrous" thickening or streaking causing insignificant luminal narrowing	3.0
Plaques causing luminal narrowing over	
10%	13.3
20%	6.3
30%	3.7
40%	3.0
50%	3.0
60%	1.7
70%	1.0
80%	1.3
90%	5.3
Plaques causing complete occlusion of one or more vessels	3.0

In several of the cases listed in table 1 as showing over 90% luminal narrowing, the plaques completely filled the lumen but displayed a free surface not fused with the intima. Hypertrophy was not observed in any heart examined. The size could not be correlated with the severity of disease found in the coronary arteries.

In the great majority of cases, the location of the lesions followed a constant pattern. If the lesion was found in the proximal third of the left coronary artery, it was usually thickest on the epicardial side of the lumen, whereas, if it was in the distal third of the artery just proximal to the bifurcation of the circumflex artery, it tended to as-

TABLE 2—Sites of Lesions Found in Coronary Arteries at Autopsy

Site	No of Cases
Left coronary	
Above bifurcation	10
At bifurcation	22
And circumflex	1
And right coronary	1
Circumflex, and right coronary	1
Anterior descending	
Branch	114
And circumflex	13
And right coronary	33
And left coronary	5
Left and right coronaries	4
Left coronary and circumflex	1
Circumflex and right coronary	8
Left and right coronary and circumflex	11
Right coronary only	3
Circumflex only	4

sume a more medial position. At the bifurcation, the plaque was constantly found on the wall of the left coronary artery directly opposite the ostium of the circumflex artery (fig 1). In the upper fourth of the anterior descending artery, the disease process was usually found on the medial posterior wall of the vessel. More distally, the posterior or myocardial side of the lumen was the common location (fig 2A). The medial branch of a bifurcating anterior descending artery was always more severely involved in cases showing extensive disease (fig 2B). In some cases, plaques were encountered on the epicardial side of the lumen of the anterior descending artery, these plaques were opposite the bifurcation of a septal branch.

The pattern of disease was not as constant in the circumflex artery as it was in the left and anterior descending branches. Streaking and/or plaque formation was oftenest observed on the superior and posterior walls of the proximal fourth of the vessel, while the next most frequent site of involvement was the posterior wall in the middle third of the vessel, usually opposite a bifurcation of the circumflex artery.

In the proximal fourth of the right coronary artery, small plaques were commonly encountered on the posterior wall opposite the adipose branches. Elsewhere in the right coronary, plaques were usually found on the posterior and superior walls. This was especially true at

the right border of the heart opposite the origin of the right marginal artery

Disease was most commonly found at the bifurcation of the circumflex artery and in the 3 cm of anterior descending artery distal to the bifurcation (table 2). In 54 of the 112 cases with lesions in the anterior descending



Fig 1—A plaque formation in left coronary artery opposite ostium of circumflex ($\times 4$) B detail of atheromatous plaque shown in A ($\times 14$)

artery, the disease process started at the bifurcation of the circumflex artery and extended down the anterior descending branch, usually on the medial and posterior sides of the lumen. In every instance in which the diseased anterior descending artery bifurcated in the first 2 cm, the deposition of atheromatous material appeared to be intensified. The angle formed by the anterior descending and circumflex arteries is important. An angle approaching 80 degrees always seemed to predispose the artery to the development of a plaque. On the other hand, the disease process tended to be modified when the circumflex artery arose at the ostium of the right coronary artery, the vessel coursing around the base of the aortic and pulmonary arteries to assume its usual position in the atrioventricular septum on the anterior surface of the heart. Minimal disease was found in the left coronary artery in three such cases.

COMMENT

It is apparent that the lesions are commonly located at or near points of bifurcation, this gives the impression that hemodynamics in the lumen about bifurcations must play an important part in the mechanism of plaque formation.

The phasic aspect of the coronary circulation is mainly the result of the aortic blood pressure and the contractions of the myocardium during the cardiac cycle. Gregg and Green¹ have shown experimentally that, during iso-

metric contractions and ejection, the blood in the deeper and more strongly compressed vessels in the myocardium is forced backward into the larger proximal channels. Wood² stated that, during systole, ventricular contractions prevent blood from flowing through the coronary vessels that penetrate the left ventricular muscles, while the larger arteries on the surface dilate to form an elastic reservoir that recoils during diastole and acts as an accessory pump forcing the blood onward. During ventricular relaxation, the blood is able to flow through the vessels penetrating muscle, because it is propelled by the aortic diastolic pressure and by the recoil of the elastic reservoir. The compression of the intramural arteries is, as noted by Friedberg,³ less in the right ventricle.

We maintain that eddying about bifurcations of the coronary arteries, occurring during the diastolic recoil of the dilated coronary arteries, is a dynamic factor in the mechanism of plaque formation. As has been shown, the most frequent sites of plaque formation are on the medial wall of the left coronary artery at the bifurcation of the circumflex artery and on the medial and posterior sides of the proximal fourth of the anterior descending artery. The severest disease was found in those cases in which the bifurcation of the circumflex artery formed an 80 de-

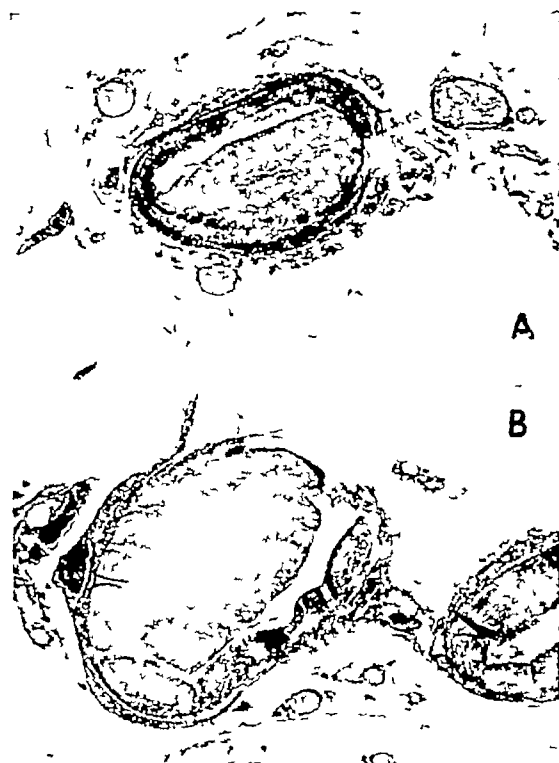


Fig 2—A large plaque on myocardial side of anterior descending branch ($\times 12.5$) B large plaque in medial branch of a bifurcating anterior descending artery ($\times 18.5$)

gree angle and the anterior descending artery gave rise to a large branch just distal to the origin of the circumflex artery. It is postulated that under such conditions

1 Gregg D E and Green H D. Registration and Interpretation of Normal Phasic Inflow into the Left Coronary Artery by an Improved Differential Manometric Method. *Am J Physiol* 130:114-125, 1940.

2 Wood P H. Diseases of the Heart and Circulation. London: Eyre & Spottiswoode Ltd, 1950.

3 Friedberg C K. Diseases of the Heart. Philadelphia: W B Saunders Company, 1949.

eddy of blood in the left and anterior descending arteries traumatizes the intima and, thus, starts the vicious circle of plaque formation

Many factors have been mentioned as the primary cause of coronary arteriosclerosis. Heredity has been accepted by many as an important agent in the develop-

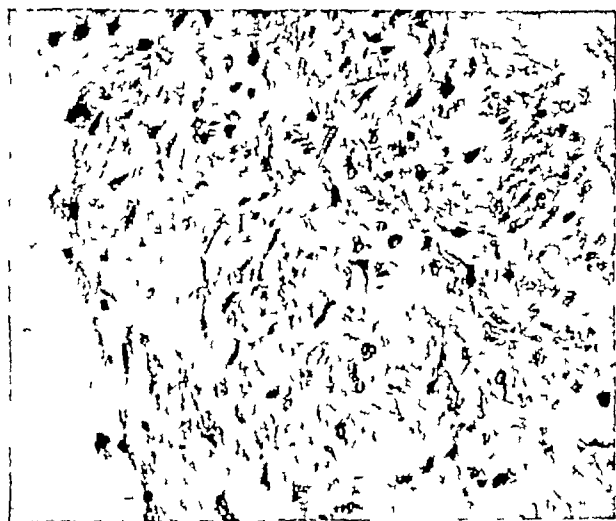


Fig 3—Thick intima in artery of a young Korean prisoner of war ($\times 335$)

ment of coronary disease. This may be manifested in the inherited pattern of coronary artery distribution. It has long been realized that coronary artery disease is much commoner in young men than in young women⁴; this suggests a hormonal factor. Boas and Ludwig⁵ have shown experimentally that testosterone stimulates the formation of connective tissue, while estrogens inhibit connective tissue formation. Some investigators have emphasized the ratio of serum cholesterol to phospholipids. According to Gofman and associates,⁶ at any total serum cholesterol level, the S_r 12-20 and S_r 20-100 classes of lipoproteins are higher in patients with coro-

nary disease than in normal subjects.⁷ Winternitz, Thomas, and LeCompte⁸ demonstrated with histological preparations and carefully executed reconstructions that intramural hemorrhage may furnish the bulk of cholesterol material in arteriosclerotic lesions, while Wartman and Laipply⁹ produced intramural hematomas experimentally and caused sclerosis in 30% of their cases. Saphir and Gore¹⁰ presented evidence of an inflammatory basis of arteriosclerosis.

Of special interest is the work of Dock¹¹ in which he demonstrated that the coronary intima of the male newborn is thicker than the intima of the female newborn. Zink¹² and Lack¹³ maintain that this phenomenon occurred only at points of bifurcation.

Most investigators are of the opinion that these areas of thickening are developmental irregularities representing prearteriosclerotic or early arteriosclerotic lesions.

It is interesting to note that the intima of the coronary vessels in young Koreans is thick (fig 3), although coronary atheromatosis is said to be rare in that race. Here we have an anatomic feature indicating stress, but plaque formation is rare. This would strongly suggest dietary factors. It is most unlikely that one factor alone can be indicated as the cause of coronary sclerosis. The findings presented in this paper indicate wear and tear on the intima caused by eddy of blood at points of bifurcation. However, other basic factors, such as hormones and diet, must be present before the disease progresses to plaque formation.

Two important points should be emphasized in view of observations made in this study: 1. Thrombosis occurs more commonly in diseased arteries, especially in cases in which extensive trauma and shock exerted their influence (fig 4). 2. In cases of sudden or clinically un-



Fig 4—Thrombosis of anterior descending artery in a 21-year-old white man who died three days after severe injuries ($\times 215$)

explained death of young men, the presence of a completely occluded coronary artery is not necessarily the cause of death.

SUMMARY

The coronary arteries of 300 soldiers killed in action were dissected. The average age of the men in this group was approximately 22.1 years. In 77.3% of the cases,

4 DeCoursey E. Coronary Occlusion and Sudden Death. Study Based upon Review of 345 Necropsies Performed at Board of Health Laboratory Ancon Canal Zone Between April 15 1932 and April 15 1933. *J Lab & Clin Med* 19:1272-1279 1934.

5 Ludwig A W and Boas N F. The Effects of Testosterone on the Connective Tissue of the Comb of the Cockerel. *Endocrinology* 46:291-298 1950. Boas N F and Ludwig A W. The Mechanism of Estrogen Inhibition of Comb Growth in the Cockerel with Histologic Observations. *Ibid* 46:299-306 1950.

6 Gofman J W and others. Atherosclerosis. Lipoproteins and Coronary Artery Disease in Karsner H T and Sanford A H. *Yearbook of Pathology and Clinical Pathology*. Chicago: The Year Book Publishers 1951. pp 110-125.

7 S_r signifies Svedbergs of flotation.

8 Winternitz M C, Thomas R M and LeCompte P M. *The Biology of Arteriosclerosis*. Springfield Ill: Charles C Thomas Publisher 1938.

9 Wartman W B and Laipply T C. The Fate of Blood Injected into the Arterial Wall. *Am J Path* 25:383-395 1949.

10 Saphir O and Gore I. Evidence for an Inflammatory Basis of Coronary Arteriosclerosis in the Young. *Arch Path* 49:418-426 (April) 1950.

11 Dock W. The Predisposition of Atherosclerosis for Coronary Arteries. *JAMA* 131:875-878 (July 13) 1946.

12 Zink K H. Sondervorrichtungen an Kranzgefäßen und ihre Beziehung zu Coronarinfarkt und miliaren Nekrosen. *Virchows Arch path Anat* 305:288-297 1939.

13 Lack A R. The Coronary Arteries in the Newborn and Childhood. cited by Anderson W A D. *Pathology*, St. Louis: The C. V. Mosby Company 1948. p 559.

some gross evidence of coronary disease was demonstrated that varied from "fibrous" thickening to complete occlusion of one or more of the main branches. The exact locations of the lesions were shown to be at or near points of bifurcation of the vessels. The hemodynamics of the

coronary circulation as modified by the anatomic variations of the coronary arterial tree are implicated as an important factor in the formation of plaques

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(Major Enos)

PRIMARY RESECTION OF THE COLON IN ACUTE ULCERATIVE COLITIS

Charles B Ripstein, M D, Brooklyn

Acute fulminating ulcerative colitis is a serious disease that carries a very high mortality. The acute attack may be an exacerbation of preexisting disease or it may represent the first manifestation of colitis in a previously apparently healthy person. In either case, the patient is acutely ill with high fever, diarrhea, bloody and purulent stools, and an overwhelming toxemia. There is often evidence of peritoneal irritation or frank peritonitis. Because these patients are so acutely ill, there has been a tendency to avoid surgical treatment, and, when it has become inevitable, simple ileostomy has been accepted as the operation of choice.¹ The results of this therapy have been poor, and the mortality has ranged from 20 to 60% in reported series of cases. In analyzing the deaths that have occurred in the past, certain facts become apparent. 1 The majority of patients show evidence of severe blood and protein loss, and this continues even in the presence of a functioning ileostomy. The blood loss may amount to 200 to 300 cc and the protein loss to 150 to 200 gm in 24 hours. The source of this loss is the diseased colon, and replacement in a severely ill patient is difficult and at times impossible. Ileostomy adds the factor of fluid and electrolyte loss. 2 Infection is an important factor in mortality. Sepsis and toxic absorption are universally present, and perforation of the colon is common (it occurred in 20% of fatal cases). The source of infection is primarily the diseased colon (fig 1).

Since all of these factors are derived from the diseased bowel, the logical solution would be its removal, and, since primary resection of the colon is so well tolerated in debilitated patients with chronic ulcerative colitis,² it has appeared worth while to evaluate the use of this procedure in acute fulminating cases of the disease. My experience with primary colectomy now covers 120 cases of ulcerative colitis, and in this group there have been five operative deaths. Forty-three of these cases fall into the acute category, and it is this group I wish to consider in detail.

INDICATIONS FOR SURGERY

Since acute ulcerative colitis responds to medical therapy in many cases, it is obvious that any radical surgical procedure should be reserved for cases in which it fails. This fact has led to the attitude that surgery is indicated only as a last desperate measure, and patients are referred for surgery in moribund condition. In an attempt to avoid this, I have adopted the following indications for surgical treatment. 1 The first is failure of medical therapy to produce a remission within a three

week period. This period is arbitrarily chosen, but it has been my experience that if a patient does not begin to improve within three weeks, further delay is dangerous. During this interval, patients have been treated with transfusions, antibiotics, corticotropin (ACTH), methantheline (Banthine), and, in some instances, psychotherapy. Sixty per cent of the patients have responded to this treatment, and the other 40% have undergone surgical treatment. 2 The second indication is perforation, actual or impending. In the presence of frank peritonitis or free gas in the peritoneal cavity, surgical intervention becomes an emergency matter. In any patient in whom localized abdominal tenderness develops, impending perforation is suspected, and in these instances a plain roentgenogram of the abdomen often shows a markedly distended colon, with little or no evidence of small bowel dilatation. I have considered these findings an urgent indication for operation. 3 The third indication is the occurrence of continued or repeated bleeding, especially if hemorrhage is extensive enough to produce a shock state. This constitutes an urgent indication for surgical intervention. 4 The fourth indication is the presence of septicemia or metastatic infection, such as endocarditis, pyoderma, or arthritis, which must be treated by removal of the primary focus after administration of a preliminary course of antibiotics.

OPERATIVE TECHNIQUE

The technique of operation is simple and has become standardized. A left rectus incision facilitates mobilization of the splenic flexure and leaves the right side of the abdomen free for ileostomy. The colon is mobilized by freeing its lateral peritoneal attachments and detaching the greater omentum from the stomach. The mesenteric vessels are then ligated and divided, and the colon is removed to the level of the rectosigmoid. The terminal ileum is brought out through a stab wound in the right lower quadrant as a permanent ileac stoma. After the occurrence of two near fatalities from ascending ileitis, I adopted Dennis's³ suggestion of doing frozen section biopsies of the terminal ileum and resecting enough so that the exteriorized bowel is microscopically free from disease. The divided rectosigmoid is exteriorized

From the Department of Surgery, Maimonides Hospital and the State University of New York College of Medicine, New York.

1 Colcock B P. *Technic of Ileostomy*. S Clin North America 31: 775, 1951.

2 Ripstein C B, Miller G G, and Gardner C M. *Results of the Surgical Treatment of Ulcerative Colitis*, Ann. Surg 135: 14, 1952.

3 Dennis C. *Ileostomy and Colectomy in Chronic Ulcerative Colitis*. Surgery 18: 435, 1945.

through a stab wound in the left lower quadrant I feel that the principle of exteriorization of all diseased bowel must be strictly adhered to to avoid leakage and peritonitis

The small segment of rectum is left in place, because I have felt that its removal would be too great a shock in

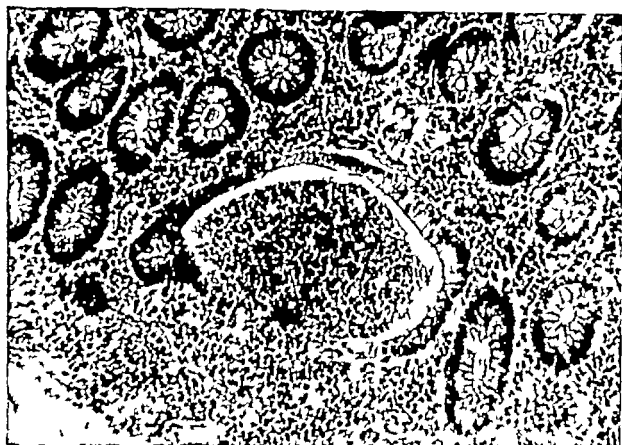


Fig 1—Microabscess in the submucosa of the colon in acute ulcerative colitis these abscesses represent the source of infection and toxemia

the poor risk patient I have carried out a total colectomy in four patients in the chronic group but in none of the acutely ill patients I have become convinced that a permanent ileac stoma is the price that must be paid for freedom from ulcerative colitis and that the rectal segment should be removed three to six months after the initial operation. It rarely heals after ileostomy and often gives rise to troublesome symptoms, such as bleeding, discharge, and fistula formation. In two cases, carcinoma has developed in the rectal segment. In four patients I have later anastomosed the ileum to the rectum, and in

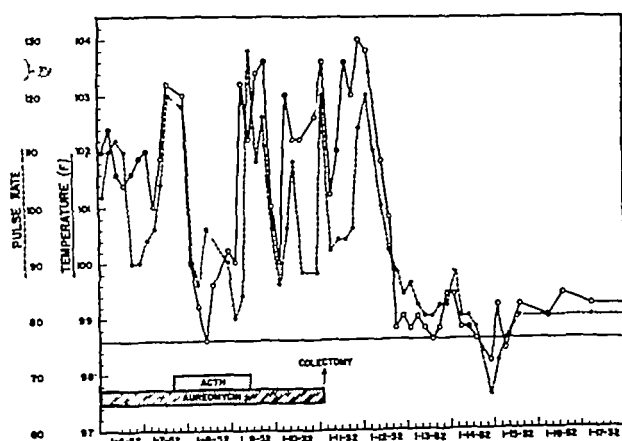


Fig. 2 (case 1)—Course of patient J. N. showing the response to resection of the colon

three of these a recurrence of disease in the remaining colon has ensued. Two attempts at anal ileostomy have been failures because of severe excoriation of the anus, and I now feel that abdominal ileostomy, with use of the Rutzen bag, offers the most satisfactory solution for these patients.

RESULTS OF PRIMARY RESECTION OF THE COLON

In the past five years, one stage resection of the colon to the level of the rectosigmoid has been carried out in 43 patients with acute ulcerative colitis. All were in a toxic state, with severe diarrhea and fever of 103 to 105 F. In six patients, massive hemorrhage was a complicating factor, in eight perforation had occurred, and in three there was evidence of metastatic infection. Two cases were complicated by carcinoma of the colon. In all, medical therapy, including use of antibiotics, methantheline, and corticotropin had failed in a three week trial, or complications had ensued that necessitated emergency treatment. Two deaths occurred, one owing to ulcerative

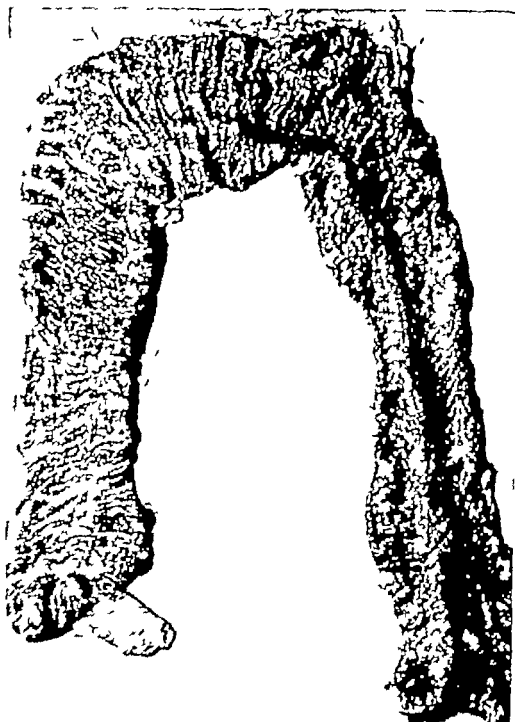


Fig 3—The resected colon in case 1 this represents the length of bowel removed in the average case. The inflammatory process extends to the ileocecal valve.

endocarditis and septicemia in a patient who was moribund at the time of transfer to the surgical service and one postoperatively owing to peritonitis and intestinal obstruction. The remaining patients all recovered, one dying subsequently from carcinoma of the bowel. There were no deaths from ulcerative colitis on the medical service during this period. The following reports illustrate typical cases.

REPORT OF CASES

CASE 1 (fig 2)—J. N., a 30-year-old woman, was admitted to Maimonides Hospital Jan 4, 1952, with a history of intermittent diarrhea for five years. She had noted acute, crampy abdominal pain, fever, and the presence of blood and pus in the stools for two days prior to admission. On admission she was dehydrated and in a toxic state with a temperature of 104 F. The abdomen was slightly distended and tender, and sigmoidoscopic examination revealed an acutely hemorrhagic mucosa with many ulcerated areas. Despite aureomycin and methantheline therapy, the patient's course continued downhill. Corticotropin was given and produced a remission in the temperature, but the abdominal tenderness increased, and roent

genograms showed a distended colon. Since there was no clinical improvement after three weeks of therapy and since the signs of peritonitis were increasing, colectomy was performed. The bowel was extensively involved with severe ulcerative colitis, with walled-off perforations in several areas (fig 3). The postoperative course was uneventful, the temperature returning to normal within 36 hours and all toxic symptoms subsiding. This patient has continued to improve. She returned in three months for excision of the rectum because of local bleeding and fistula formation. Since that time she has led a normal life and has gained 40 lb (18.1 kg) in weight.

CASE 2 (fig 4)—R P, a 47-year-old woman, was admitted to Maimonides Hospital April 10, 1950, with a history of bloody diarrhea for three weeks and fever, weakness, and massive bleeding from the rectum for 10 days. On admission she appeared extremely ill and in a toxic state with a fever spiking up to 103 F. Sigmoidoscopic examination revealed a fulminating, necrotic, ulcerative colitis with pseudopolyp formation. She was treated with transfusions and antibiotics, but her fever continued and the toxic state became severe. Bilateral pleuritis and pericarditis developed, and the abdomen became distended and tender. Because of her rapid downhill course and the development of obvious peritonitis, colectomy was undertaken April 14, 1950. At operation, the entire colon was extensively involved with ulcerative colitis, with three areas of free perforation and a walled-off abscess in the region of the splenic flexure. The colon was removed to the level of the lower sigmoid, which was exteriorized. The postoperative course was stormy, but the patient recovered and is alive and well today. She has had a subsequent abdominoperineal resection of the rectum because of continued bleeding and discharge.

CASE 3 (fig 5)—W J, a 29-year-old man, was admitted to Maimonides Hospital Sept 19, 1951. This patient had had ulcerative colitis for 10 years, but 24 hours before admission he became acutely ill with severe abdominal pain, nausea, vomiting, and bloody diarrhea. At the time of admission he was in an extremely toxic state, with a rigid, tender, distended abdomen. Roentgenograms revealed free gas in the peritoneal cavity, and a preoperative diagnosis of colonic perforation was made. Immediate laparotomy was performed, and at operation acute ulcerative colitis complicated by carcinoma

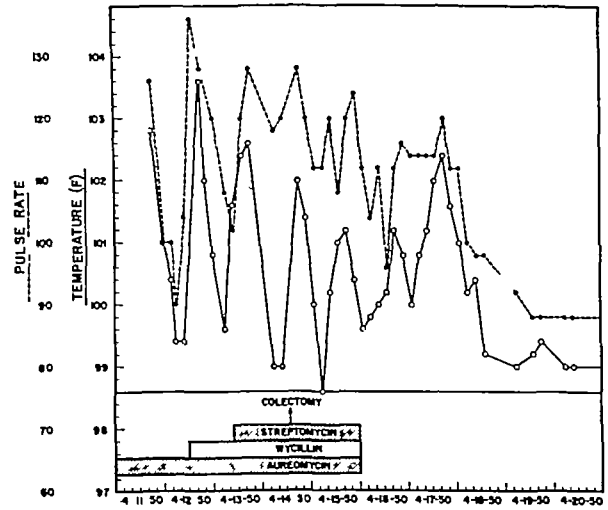


Fig 4 (case 2)—Course of patient R P showing response to resection of the colon (Wycillin is crystalline procaine penicillin G)

of the transverse colon and a free perforation of the cecum was found. Colectomy and ileostomy were carried out, and the postoperative course was uneventful. The patient gained 40 lb (18.1 kg) in the next few months and was well for 10 months after operation, when he began to complain of back pain, which was found to be due to metastatic carcinoma.

COMMENT AND SUMMARY

It appears that primary resection of the diseased colon with ileostomy is the surgical procedure of choice in cases of acute ulcerative colitis that fail to respond to medical therapy. The operation may appear radical, but, in removing the source of blood and protein loss, elimi-

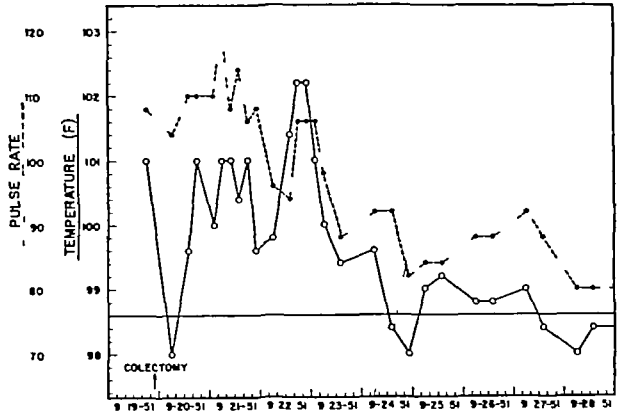


Fig 5 (case 3)—Course of patient W J showing response to resection of the colon

nating the focus of infection and toxic absorption, and forestalling the danger of perforation, it offers the patient a better chance of survival than does ileostomy alone. When ileostomy is performed without removal of the diseased bowel, the factors of fluid and electrolyte loss are added to the patient's burdens. An arbitrary interval of three weeks has been selected as the trial period for conservative management in these cases, if the patient does not improve in that time, operation is carried out. In the face of complications, such as hemorrhage or perforation, emergency surgery is indicated. The operation of primary colectomy was carried out in 43 patients with acute exacerbations of ulcerative colitis, there were two deaths in this group, a mortality of 4.6%.

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Diagnosis and Treatment.—It was a common reflection a couple of decades ago that treatment lagged behind diagnosis, the physician was often accused of being more interested in the latter than in the former. In so far as the charge had reference to the common bacterial infections the lag has been eliminated. Indeed, the position has perhaps been reversed. There is in this field such a wealth of available resources in treatment that the temptation to 'get busy' with one or more of the sulpha drugs, or with one or other of the antibiotics, or indeed, with one or other of both of these, before the nature of the infection is fully ascertained, is almost irresistible. This is not always the doctor's fault, his hand is sometimes forced by the patient's anxious friends, who do not know, as does the doctor, that powerful remedies sometimes have 'side-effects' and that the patient's germ may have been rendered insensitive to the antibiotic when he badly needs it because he has already received it when it was not really necessary, or even indicated. But diagnosis is, after all, the alpha and omega of Medicine, and side by side with these slow advances in treatment came developments equally important, if less dramatic, in this sphere.—Lord Horder, M.D., *Fifty Years of Medicine, Journal of the Royal Institute of Public Health and Hygiene* March, 1953.

MODERN EXTRAPLEURAL PNEUMOTHORAX IN THE CHANGING TREATMENT OF TUBERCULOSIS

J W Cutler, M D, Philadelphia

Modern drug therapy and resectional surgery are producing dynamic changes in current thinking on the treatment of pulmonary tuberculosis. Pneumothorax, a long-established and flexible procedure, has been virtually abandoned in many institutions, because of possible complications, rather than limited to patients with proper indications. Thoracoplasty is decreasingly resorted to as an independent and definitive form of collapse. Extrapleural pneumothorax is seldom used because of prevailing prejudices. Pneumoperitoneum, an inefficient form of therapy and not without serious complications, is still popular in some quarters. On the other hand, resection is greatly on the increase and has become the treatment of choice with many physicians.

The development of streptomycin, *p*-aminosalicylic acid, and the isoniazid compounds has introduced new problems. Needed surgery is often delayed or neglected, with the hope that the new drugs will obviate all other therapeutic procedures. Overlooked is the fact that collapse or resection, or both, is ultimately needed in the great majority of cases to consolidate the gain achieved by bed rest and drug therapy, and the fact that surgery, if indicated at all, should be completed early in the course of therapy, when the tubercle bacillus is still sensitive to all the drugs. In the midst of such rapid and radical developments, the rules for good treatment in tuberculosis are still being formulated. Physicians, after all, are human beings too and, like other persons, are faddists to a considerable degree.

RESECTION

It is questionable whether the current marked trend to resection, on the assumption that resection is the best if not the only proper surgical approach, is really the best answer to the tuberculosis problem. It is possible to be overly enthusiastic about the newer benefits of resection and to forget the many valuable contributions good collapse therapy can make to recovery. This appears to be happening today. If the current trend is continued, a point is likely to be reached at which apparently little can be done for the tuberculous patient to assure recovery unless resection can be done, that is, unless the disease is sufficiently stabilized and localized for resection or can become so after months of bed rest and drug therapy and perhaps pneumoperitoneum. For the patient not so fortunate, this leads to a dreary, if not hopeless, outlook for a useful life, for he must depend solely on what drugs and institutional care can do for him. As a direct result of this trend, many patients are forced to stay in sanatoriums much longer than is really necessary or desirable, and the shortage of beds for tuberculous patients increases, although the death rate and incidence of the

disease is dropping. This is an unsatisfactory and unhealthy situation and is really not an advance in therapy. On the contrary, it is a step backward, as the following recent case well illustrates.

CASE 1—A white man, aged 35, married, consulted me on Feb. 2, 1953, and gave this history. He was first given a diagnosis of pulmonary tuberculosis on April 12, 1951, after a chest survey x-ray examination at his place of employment. There was moderately advanced disease, consisting largely of soft infiltration involving the middle two-thirds of the left lung field, with a small cavity in the outer zone of the second anterior interspace. There were also a few tuberculous deposits in the subclavicular area on the right. His general health was good, and for the most part he was asymptomatic. Tubercle bacilli were found in the sputum. On June 15, 1951, he was admitted to an institution, where he received rest, good food, all the antibacterial drugs available, a left temporary phrenic nerve interruption, and pneumoperitoneum. But his sputum continued to show tubercle bacilli, and on the whole the disease showed little resolution. The cavity remained open.

The patient, however, was getting restless. He was anxious to return home to a normal life and support his wife and child. In January, 1953, he asked his physician how much longer he would remain in the institution. He was told that at the rate his disease was improving it would take at least one more year before a limited resection could be undertaken and that another year of bed rest would be necessary after the operation to heal the diseased area that could not be removed by resection. He would have had three to four years of hospitalization, in other words, for a relatively mild case of moderately advanced tuberculosis, which before resection and chemotherapy could have been handled easily and effectively with therapeutic pneumothorax in a fraction of the time and at relatively little cost. As it was, intrapleural pneumothorax was not even suggested, let alone tried.

Resection and collapse, however, are not necessarily competitive or mutually exclusive procedures. On the contrary, they complement and supplement each other. But more important, they are needed in different types of patients. For instance, there are patients with special problems, such as a fibrotically stenosed bronchus, in whom collapse therapy is a predictable failure. In such instances resection is the answer. On the other hand, there are patients in whom the disease is so advanced and so badly distributed that resection cannot be considered at any time. In many such cases, collapse therapy has scored some of its most brilliant successes. Then again, collapse and resection have been combined successfully in the same patient. Both forms of therapy, resection and collapse, are valuable and necessary.

Most good results after resection are recorded in patients with roentgenographic evidence of limited or isolated and well-stabilized disease. But cases of such limited disease were never the real problem in tuberculosis therapy. It is the patient with the more advanced, more scattered, and less stabilized disease who constitutes the challenge and who represents the great majority of patients seeking treatment. For most of these patients reversible collapse, and not resection, is the better procedure. The problem, therefore, is a complex one, and it is important to keep an open mind. Obviously, integra-

This study was aided by a grant from the Wawa Foundation for Pulmonary Disease.

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tion of therapy and careful planning of the over-all therapeutic attack to fit the needs of the individual patient are clearly indicated. Only in this way can the best interests of the patient be served. Such planning must also take into consideration the ultimate effect of the chosen therapy on pulmonary function, and all available methods of treatment should be employed, including, of course, collapse therapy. Important recent advances have taken place in this field, especially in extrapleural pneumothorax collapse, as well as in resection.

DEPRESSIVE EFFECT OF EXTRAPLEURAL COLLAPSE ON TUBERCLE BACILLUS

To fully appreciate extrapleural collapse, it is essential that one think of collapse therapy in terms of more than intensive rest. Important as this is, standing alone it fails to control the disease. Instead, one must think of collapse, first of all, in terms of a profound and long-continued depressive effect on the tubercle bacillus itself.

Extrapleural collapse deprives the bacillus (a strict aerobe) of vitally needed oxygen by preventing the normal replenishment of atmospheric air through closure of terminal bronchioles. This produces a specific inhibitory, even bactericidal, effect on the bacillus, similar to that produced by streptomycin and isoniazid, except that it is achieved mechanically by creating a serious oxygen deficiency at the point of disease. In this respect, extrapleural collapse is even more valuable than present drug therapy, for it is as effective against strains of bacilli resistant to the various drugs as against those still sensitive. Moreover, the inhibitory action of the extrapleural collapse can be maintained indefinitely, even for years after the drugs have lost their potency. This effect of collapse is poorly appreciated and is, therefore, rarely emphasized,¹ yet this is essentially the mechanism of cure by collapse. The supporting evidence of the injurious effect of oxygen starvation on the tubercle bacillus is voluminous and fully convincing.² Attention, however, should be called to the recent findings reported by Dubos.³ Dubos stated that oxygen deprivation not only disturbs the respiratory system of the bacillus directly in the manner stated but also alters unfavorably the biochemical environment within the necrotic lesion. He found that certain chemical substances, such as long-chain fatty acids and lactic acid, present in the tuberculous lesion, may become sufficiently bactericidal in low concentrations under semi-anaerobic conditions to kill the tubercle bacillus when its oxygen intake is lowered. A sort of chain reaction is thus set up, with chemical factors in the lesion acting as unexpected antituberculosis agents, "closing in" on the bacillus already weakened through oxygen starvation. Oxygen starvation of the bacillus, resulting from the walling off of the tuberculous process by the natural forces of the body so that the lesion does not communicate with a patent bronchus, and the action of the above chemical factors undoubtedly constitute part of the mechanism of spontaneous healing in tuberculosis.

Oxygen starvation of the tubercle bacillus is also the outstanding accomplishment in extrapleural pneumothorax. By preventing replenishment of atmospheric air through closure of terminal bronchioles, extrapleural collapse applies on a large scale, and in a controlled and

scientific manner, the very mechanism of cure so successfully employed by nature, for it converts open, oxygen-rich lesions into closed, oxygen-poor ones and prevents closed lesions from becoming open. Since closed lesions constitute a highly unfavorable environment for the survival of the bacillus, if kept closed by the collapse they invariably heal and need no resection.

A cavity in which the walls can be approximated and the draining bronchus closed behaves in the same way as a closed lesion. The tubercle bacillus, deprived of oxygen by the collapse and weakened still further by the chemical factors in the lesion, becomes attenuated, the infection subsides, and the cavity undergoes contraction and finally obliteration. It may leave behind no visible trace or may be represented by a few scars and calcified spots. The surrounding alveoli, in the meanwhile, expand.



Fig 1—Comparison of selective thoracoplasty done on the left and extrapleural pneumothorax on the right.

to fill out the space formerly occupied by the destroyed lung tissue. A good example, but not an exceptional one, is the disappearance of the large apical cavity (4 by 3.5 cm) in case 7 with extrapleural pneumothorax collapse. It is literally amazing how much of the diseased area,

1 Coryllos P N. How Do Rest and Collapse Treatment Cure Pulmonary Tuberculosis? *J A M A* 100 480-482 (Feb 18) 1933.

2 Corper H J, Lurie M B and Uyei N. The Variability of Localization of Tuberculosis in the Organs of Different Animals. Importance of Growth of Tubercle Bacilli as Determined by Gaseous Tension. *Am Rev Tuberc* 15 65-87 (Jan) 1927. Richardson H B, Shorr E and Loebel R O. Comparative Studies in the Respiratory Metabolism of Various Acid Fast Bacilli. *Nat Tuberc A Tr* 27:205 1931. Kemper W. Oxygen Tension and the Tubercle Bacillus. *Am Rev Tuberc* 40:157-168 (Aug.) 1939. Rich A R and Folis R H Jr. The Effect of Low Oxygen Tension upon the Development of Experimental Tuberculosis. *Bull Johns Hopkins Hosp* 71 345-363 (Dec) 1942.

3 Dubos R J. Discussion on Treatment of Tuberculous Meningitis and Survival of Bacilli in Tuberculous Lesions. *Am Rev Tuberc* 65 637-640 (May) 1952.

previously refractory to all other therapy, can disappear under collapse and leave little or no trace behind

In retrospect, and viewed from the standpoint of the completeness of the collapse and the resultant degree of oxygen starvation, it becomes obvious at once that virtually all poor results in patients who are given collapse therapy can be attributed to inadequate, poor, or ineptly applied collapse. On the other hand, an area of lung well collapsed invariably heals, regardless of ultimate outcome. For instance, in ineffectual intrapleural pneumothorax there is always an area of lung that, by chance, is technically well collapsed. Such an area always improves, despite the fact that it is surrounded by progressive and fatal disease.

The whole question of what constitutes good treatment in tuberculosis has to be reevaluated in the light of these facts. If tubercle bacilli die or remain harmless in closed tuberculous lesions, as current studies on resected lungs

principle in the treatment of pulmonary tuberculosis. Extrapleural collapse provides the most intensive rest possible and does so for an indefinite period of time. It thus promotes healing of the lung in the same sense that a cast heals a broken leg.² Once the diseased portion of the lung has been physically reduced to a minimum by the collapse and the blood and lymph current slowed through mechanical blockage of these channels, toxemia with all its attendant symptoms disappears promptly and the sputum becomes normal. The relatively short time required for collapse to produce a feeling of clinical well-being and normal sputum is one of the wonders of modern medicine, with far reaching social, economic, and public health implications.

Extrapleural collapse, therefore, unquestionably represents sound scientific treatment, direct and definitive. Through suppression of the infection, it can alter in dramatic fashion the reaction of the lung in tuberculosis from one of apparent extreme susceptibility to that of apparent high resistance and thus give the healing forces of the body the opportunity and the time to create the necessary immunity, which alone can bring about lasting cure. Fully integrated with bed rest, supportive measures, and chemotherapy, extrapleural collapse can create miracles of healing.

INTRODUCTION OF EXTRAPLEURAL COLLAPSE

Although extrapleural pneumothorax is potentially the most useful of surgical procedures, it is also, unfortunately, one of the most controversial. The objective is to create a selective extrapleural pocket between the outer layer of the pleura and the chest wall and maintain it by air pressure. This is accomplished by mobilizing the lung extrapleurally after resection of about 5 cm. of the fourth or fifth posterior rib through a small paravertebral incision, beginning at the transverse process. In one case (fig. 1) thoracoplasty was done on the left side in September, 1941, and extrapleural pneumothorax on the right in October, 1950. The extent of the disease at the time of surgery was about the same in both upper lobes. The thoracoplasty resulted in a deformity, but the extrapleural pneumothorax did not, the latter procedure was much more complete. The patient is now in good health, is physically active, and has normal sputum.

Extrapleural collapse, of course, is not a new operation. It was first tried by Tuffier in 1891 for pulmonary hemorrhage. During the 30's the operation was popularized by Zorini (1933), Graf (1937), and Schmidt (1937). In 1940 Dolley³ and associates reviewed about 2,000 operations from 27 clinics and concluded that extrapleural pneumothorax should be instrumental in obtaining sputum conversion in 63% of the cases. In spite of these encouraging reports, the procedure soon fell into disrepute, particularly in this country, and it was, to a large extent, abandoned because of the numerous complications encountered and the relatively few good late results. Another reason for the current lack of popularity of this operation is the difficult and painstaking postoperative care and follow-up essential for a good result. In contrast to thoracoplasty or resection, the extrapleural collapse patient needs constant and skilled attention and protracted refills.



Fig. 2—Extrapleural pneumothorax in case of acute progressive tuberculosis. A, planigram study of right lung after unsuccessful intrapleural pneumothorax. B, seven weeks after successful right extrapleural collapse.

clearly indicate,⁴ and the disease heals, it would appear that major resection, with its needless sacrifice of lung tissue, increased operative risk, and prolonged hospitalization, may be ill-advised and collapse the procedure of choice. What is clearly and undoubtedly needed for many patients is a reversible collapse, similar to intrapleural pneumothorax but without its limitations and potential complications, one that will permit future use of the diseased lung after it has healed. Extrapleural collapse admirably fulfills these requirements, major resection or thoracoplasty obviously cannot.

Extrapleural collapse contributes still further to recovery.¹ Intensive rest is generally accepted as a basic

4 Medlar E. M., Bernstein S. and Steward D. M. Bacteriologic Study of Resected Tuberculous Lesions, *Am. Rev. Tuberc.* 66: 36-43 (July) 1952. Beck F. and Yegian D. Study of Tubercle Bacillus in Resected Pulmonary Lesions *ibid.* 66: 44-51 (July) 1952. Yegian D. Biology of Tubercle Bacilli in Necrotic Lesions *ibid.* 66: 629-631 (Nov.) 1952.

5 Dolley F. S., Jones J. C. and Skillen J. Extrapleural Pneumothorax. Critical Survey *Am. Rev. Tuberc.* 41: 403-422 (April) 1940.

In retrospect, this operation was introduced too soon, in the preantibiotic era, and before lytic enzymes and the necessary technical improvements were developed. During the past few years, however, chiefly since 1946, the prognosis of this operation has materially improved, due to a number of factors: the availability of penicillin, streptomycin, and other antimicrobial drugs with which to control the infection of the extrapleural space, the return to simple extrapleural pneumothorax and the discontinuance of plombage, the use of streptokinase and streptodornase to overcome fluid coagulum and blood clots with attendant loss of extrapleural space, improvements in the technique of mobilization of the lung, especially the permitting of the mesial surface of the lung to remain adherent to the mediastinum, and other innovations evolved by those who have persevered in the face of discouraging early results.⁶ The serious complications that plagued extrapleural surgery in the past have, to a large extent, been eliminated or can be readily controlled. The very factors that have made resection practical have, by the same token, greatly improved the prognosis of extrapleural pneumothorax, and today old prejudices are no longer valid.

ADVANTAGES OF EXTRAPLEURAL PNEUMOTHORAX

Modern extrapleural collapse has many inherent advantages. As is evident from the accompanying illustrations and report of cases, extrapleural pneumothorax brings about the most complete and the most selective collapse possible, the ultimate in low oxygen therapy. In this respect it combines the stability of the collapse of thoracoplasty with the flexibility and versatility of the collapse of intrapleural pneumothorax, and it does so without the loss of function or deformity, or the uncertainty of cavity closure that may follow thoracoplasty, as well as without the adhesion problem, or complications or physiological disadvantages of intrapleural pneumothorax. Obviously, the more complete the collapse of the diseased area, and the better stabilized, the more intensive will be the local rest, the better the control of the toxemia, the more certain the conversion of sputum, and, above all, the greater the depressive, inhibitory effect on the tubercle bacillus. Extrapleural pneumothorax, therefore, is the most effective of collapse measures. It also offers greater security than resection, for it can bring under control virtually all the demonstrable disease in the treated lung, whereas resection is limited in its effectiveness to the area excised.

Extrapleural collapse is a one stage operation, non-deforming (fig 1) and well tolerated, even in poor risk patients with a low respiratory reserve. It can be combined with other forms of surgical therapy on the same or contralateral side or used bilaterally. This makes it possible to extend the benefits of collapse therapy even to the patient with extensively advanced bilateral disease who otherwise could not be considered for any type of surgery. It can also be used in patients desperately ill with acute progressive tuberculosis and in the presence of serious uncontrolled pulmonary bleeding, at a time when other forms of surgical intervention may be plainly contraindicated or too risky. In all such poor risk cases extrapleural collapse may be dramatic in its effectiveness and truly a life-saving procedure. The following case

histories are typical examples of the potential usefulness of extrapleural collapse in various types of cases: acute progressive tuberculosis, uncontrolled hemoptysis, advanced bilateral fibroulcerative tuberculosis, and cases of both young and old persons.

CASE 2—A white woman, aged 33, was seriously ill with acute caseocavernous tuberculosis involving the right lung when she came under my care on Aug 17, 1950. The entire right upper lobe was virtually destroyed through cavity formation, and infiltrative changes were noted in the remainder of the lung. The left lung was apparently free of disease. She had a temperature of 101 F, cough and expectoration, and hoarseness, and had lost much weight. Many tubercle bacilli were found in the sputum.

Intrapleural pneumothorax was unsuccessful because of adhesions and had to be abandoned (fig 2A). Thoracoplasty and resection were considered but were ruled out as too hazardous. The patient showed little improvement after therapy with streptomycin and *p*-aminosalicylic acid (isoniazid was not then available). A right extrapleural pneumothorax was performed on Sept 29, 1950, and the disease was well controlled, with all cavities closed within one month (fig 2B). The sputum became normal in March, 1951, and has remained so since. Her health is excellent today, 30 months after operation. She takes care of her home and leads a reasonably normal life.

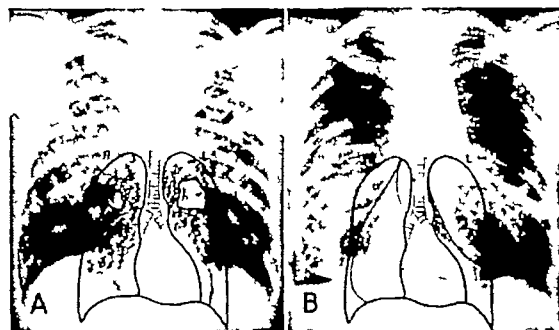


Fig. 3—Case of far advanced bilateral disease. A Intrapleural pneumothorax on the left side had been unsuccessful. B eight years later the right side had collapsed with intrapleural pneumothorax (July 1 1945 followed by pneumonolysis) and the left side with extrapleural pneumothorax (May 1 1946). There is marked improvement in both lungs: the left extrapleural collapse is more selective and more complete than the right intrapleural collapse.

In this instance, extrapleural pneumothorax was not only dramatic in its effect but life-saving. Fortunately, since the availability of isoniazid, the chances of controlling the acuteness of the disease with drug therapy have been materially increased and the urgency for surgical intervention correspondingly lessened. Nevertheless one can foresee cases of patients with acute disease in whom all drug therapy may fail and collapse provides the only solution.

CASE 3—A white woman, aged 24, had advanced exudative tuberculosis with cavity formation involving the left upper lobe and bronchogenic spread to the right upper lobe, complicated by serious and continued hemoptysis. Intrapleural pneumothorax was tried on the left, but the collapse was ineffectual and had to be abandoned. The outlook appeared ominous. A left-sided extrapleural pneumothorax was established on May 9 1947, with complete success. This patient remains well today and lives a normal life, approximately six years after surgery.

CASE 4—A white man, aged 41, when first seen May 14, 1945, had far advanced, bilateral fibroulcerative tuberculosis with multiple cavities, the sputum showed tubercle bacilli (fig 3A). Intrapleural pneumothorax on the left side (May, 1945) was unsuccessful, but that done on the right side July 1, 1945,

6 Cutler J W Importance of Extrapleural Pneumothorax in the Collapse Therapy of Pulmonary Tuberculosis *J Thoracic Surg.* 21: 217 258 (March) 1951

was successful, after pneumonolysis on Aug 16, 1945 Continued bed rest and sanatorium care for one year resulted in only slight improvement of the disease in the left lung The cavity remained open Accordingly, a simultaneous extrapleural pneumothorax was performed on the left side on May 1, 1946 (fig 3B) An excellent result has been recorded to date, seven years later, sputum is normal, the patient is working, and there is noticeable resolution of disease in both lungs

CASE 5—A white man, aged 61, had advanced exudative tuberculosis of the right upper lobe with a cavity 3 by 2.5 cm. in the region of the clavicle when he first came under my care on July 8, 1947 Tubercle bacilli were found in the sputum Intrapleural pneumothorax was done, but, since the apex was found widely adherent, treatment was discontinued within a month In the meantime, the cavity had increased in size to 6 by 6 cm A right extrapleural pneumothorax was performed on Sept 5, 1947 The cavity closed shortly thereafter and has remained closed, with the sputum normal since November, 1947 At present (March, 1953), the patient, aged 67, is self supporting and enjoying a normal life, nearly six years after the operation



Fig 4—Reexpansion of extrapleurally collapsed lung A before surgery and B one month after extrapleural collapse

Extrapleural collapse is also a happy solution for young persons who dread thoracoplasty or extensive resection and has also been carried out successfully during pregnancy

Extrapleural collapse is a practical solution to pressing social, economic, and public health problems Because the collapse can be established shortly after the diagnosis is made, it can bring about early effective control of the tuberculous process, early conversion of sputum and an early return to good clinical health, frequently within a matter of months These results are possible because the collapse may be instituted in the presence of a wide variety of unfavorable clinical conditions without waiting for the disease to become stabilized and localized, as is necessary with thoracoplasty or resection, or until pleural adhesions are severed, as in intrapleural pneumothorax Although the disease is not yet cured, the patient

so restored can live a reasonably normal life, mingle freely with others, and become self-supporting Men can go back to their accustomed jobs, women can bear children, and young persons may continue their studies There is no reason why, in the light of the new experiences with this operation, the tuberculous patient need have his life's ambition thwarted or be forced to live a life of semi-invalidism or remain indefinitely in an institution This is one of the truly big achievements of modern medicine—rehabilitation at its best

Since the extrapleural collapse exerts a continuous and profound depressive effect on the bacillus years after all the drugs have lost their value, all that is needed to keep the patient in good health is to maintain the collapse long enough to permit complete healing of the tuberculous lung—empirically, for three to five years The lengthy period of treatment is no particular hardship, or even an important inconvenience, and is a small price to pay for good health Particularly is this true when the collapse is reversible and results in healing with little loss of lung tissue and insignificant disturbance to pulmonary function Extrapleural collapse, therefore, not only solves the immediate pressing social, economic, and public health problems of the tuberculous patient in minimum time and at the least cost but also makes possible long range planning and ultimate eradication of the disease Through a more rapid turnover of patients, it can also alleviate the present shortage of hospital beds The following report is a typical example of the potentialities in this direction

CASE 6—A white married man, aged 36, first came under my observation on May 5, 1949 At that time he had far advanced bilateral pulmonary tuberculosis, involving primarily the upper two thirds of the left lung, with a cavity (2 by 3 cm) at the apex Closely set, flocculent spots were also present in the posterior segment of the upper section of the right lung He had been ill with tuberculosis since March, 1943, and responded to bed rest, only to break down again in 1949 The sputum again contained tubercle bacilli Intrapleural pneumothorax was attempted on the left side shortly after he came under my care but without success, because of an adherent pleura On June 10, 1949, the left lung was successfully collapsed by an extrapleural pneumothorax The cavity promptly closed, and the sputum became normal one month later (July, 1949) It has remained normal ever since and gives negative culture studies

On Dec 11, 1949, six months after surgery, he was discharged from the institution to continue with outpatient extrapleural pneumothorax treatment Shortly thereafter he returned to work At present (March, 1953) he is on the local police force and enjoys good health He is in no way deformed or handicapped in his pulmonary reserve The disease in the right lung, in the meantime, has improved spontaneously and needs no treatment Here was a potentially difficult problem, solved with extrapleural pneumothorax without much hardship or prolonged hospitalization

The importance of always preserving maximal pulmonary function in the treated lung has been increasingly recognized during recent years Neglect of this principle can be of serious consequence to the patient should the need arise for major surgical treatment of the contralateral side, a distinct possibility in about 50% of treated patients

Extrapleural collapse conserves pulmonary function in two ways 1 As a surgical procedure, extrapleural collapse disturbs lung function less than either intra-

pleural pneumothorax, thoracoplasty, or resection, and very much less than resection and thoracoplasty combined in the same patient, a fact substantiated by pulmonary function studies carried out before and after surgical intervention. In fact, the resultant established loss of function after extrapleural collapse is small or nonexistent and is at the expense only of functional residual air.² There is another aspect of the problem of pulmonary function after surgery. Good treatment must always take into consideration the indisputable fact that the tuberculous disease may clear and leave behind healthy lung. Because of the largely reversible character of the modern extrapleural collapse and the tendency for the disease to disappear under collapse, recovery can be achieved with little permanent loss of lung tissue. In contrast, lung lost through thoracoplasty or resection is gone forever.

Contrary to past experiences and commonly held beliefs, modern extrapleural collapse, relieved of empyema and of serious fluid problems, is, in my experience, largely a reversible collapse—more so than intrapleural pneumothorax. This is true even when the patient is given extrapleural collapse therapy for a period of years. The physical factors operating in the extrapleural space always favor long-term reexpansion of the collapsed lung. The following case illustrates this point, as well as many others stressed in this paper.

CASE 7—A white man, aged 26, came under my care on April 27, 1947. Examination revealed far advanced disease involving the right lung: a cavity (4 by 3.5 cm) at the apex, and infiltration extending as far down as the diaphragm, centering chiefly in the third and fourth anterior interspaces (fig. 4A). The left lung was apparently successfully collapsed with intrapleural pneumothorax, which had been maintained since October, 1944. Intrapleural pneumothorax was attempted on the right side to control the disease in this lung but without success. Thoracoplasty or resection was considered too risky. Accordingly, an extrapleural pneumothorax was carried out on Sept. 19, 1947, and an excellent result obtained (fig. 4B). The cavity was closed, the disease in the remainder of the lung controlled, and the sputum rendered normal within a few weeks. The patient now had bilateral collapse: intrapleural collapse on the left side and extrapleural on the right. Within six months he returned to part time work and left my care in August, 1949, in good health.

The intrapleural pneumothorax on the left side was discontinued elsewhere November 1949 and the lung permitted to reexpand. The extrapleural collapse on the right side, however, was maintained. The patient continued to do well. In January, 1952, he started to cough and tubercle bacilli were again found in the sputum. He returned to my care on April 14, 1952. Planigram studies revealed at least one certain cavity in the apex of the reexpanded left lung. The heart and mediastinum were pulled over to the left, and the left diaphragm was more or less fixed and immobile. In addition, there was a fluid cap over the left apex in the area where the lung failed to reexpand. In contrast, the extrapleural collapse of the right lung was virtually the same in extent as shortly after the operation (fig. 5A). The pleural layers were thin, and there was no fluid problem. The right diaphragm was normal in contour and moved freely.

Since the extrapleural collapse had been maintained uninterruptedly for four and one half years, it was decided to reexpand the right lung, at least in part, to restore vital capacity before undertaking surgery on the left side. There was no difficulty whatever in reexpanding the extrapleurally collapsed lung. There was no shifting over of the trachea or mediastinum, no distortion of the diaphragm and no fluid problem during the reexpansion process (fig. 5B). In the planigram

of the reexpanded right apex there were a few calcified spots but no evidence of the original large cavity (fig. 6).

On Sept. 26, 1952, an extrapleural pneumothorax was established successfully on the left side and the simultaneous extrapleural pneumothorax on the right maintained without difficulty. If this patient had been subjected to a thoracoplasty on the right side or lobectomy and concomitant thoracoplasty in October, 1947, instead of a reversible extrapleural collapse, he would have been seriously handicapped in his pulmonary reserve five years later when the disease recurred in the left lung. As it was, he left the institution on Dec. 13, 1952, free of symptoms and with sputum negative by culture. At present, (March, 1953) he is living a reasonably normal life and is self-supporting. All he has to do in the line of treatment is report for refills. He is also continuing with long term combined drug therapy. The prospects for lasting recovery are excellent. The disappearance of the large cavity under collapse in this instance is striking but not at all exceptional.

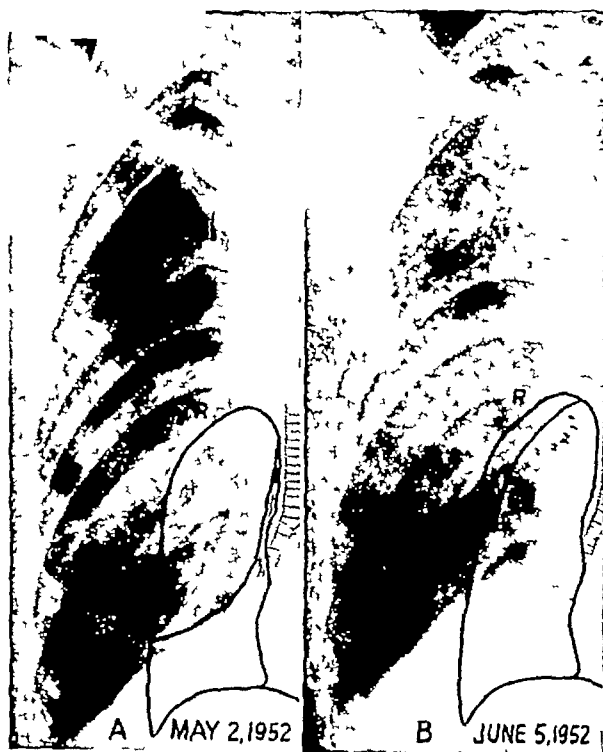


Fig. 5—Same patient as in figure 4. A four and one-half years later B one month later after reexpansion of the right extrapleurally collapsed lung. Note thinness of the pleural layers after 57 months of continued collapse.

COMPLICATIONS, MORTALITY, AND LATE RESULTS

It is evident from what has been said and from the examples cited, that extrapleural pneumothorax is an exceedingly valuable procedure with a wide field of usefulness. My experience with 129 extrapleural operations in a consecutive series of 121 patients (8 cases of bilateral operations) from December, 1938, to May, 1950, evaluated over an average period of 54 months, has been reported on at some length in a previous communication⁶ and will be brought up to date in detail in a forthcoming paper. Suffice it to say that new experiences with an addi-

7 (a) Gaensler E. A. and Strieder J. W. Pulmonary Function Before and After Extrapleural Pneumothorax: Comparison with Other Forms of Collapse and Resection. *J. Thoracic Surg.* 20: 774-797 (Nov.) 1950. (b) Stead W. W. Physiologic Studies Following Thoracic Surgery. Immediate Effects of Upper Lobectomy Combined with 5-Rib Thoracoplasty. *ibid.* 25: 194-204 (Feb.) 1953.

tional 69 consecutive operations, including poor risk patients with far advanced bilateral disease and deteriorated health, continue to support the published findings

Operative mortality and incidence of important complications will naturally vary with the type of case subjected to operation. The cumulative experience with the entire series of 198 consecutive operations as of March, 1953, is shown in figure 7. To better evaluate this experience, the results are presented as two distinct series of

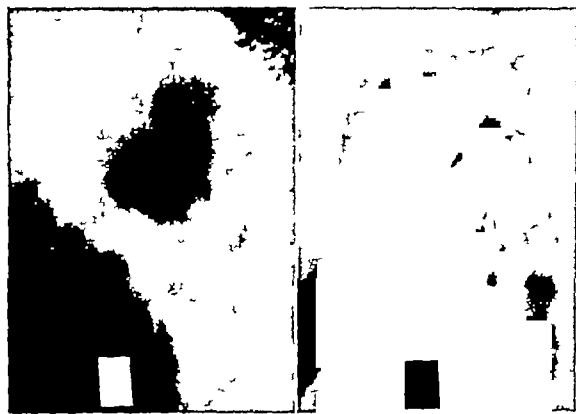


Fig 6—Same patient as in figures 4 and 5. Note disappearance of large cavity under extrapleural collapse in right side of figure.

operations, those performed during 1938-1946, comprising 64 consecutive operations, and those performed during 1947 through March, 1953, consisting of 134 consecutive operations. Prior to 1946 is the pre-streptomycin era and the period of experimentation, when contraindications had yet to be learned first hand and techniques improved. This is a good record, particularly when one considers the type of patients who were subjected to surgery. 59% had far advanced bilateral disease, and many were not suitable for any other form of effective therapy. Some of the unsuccessful results (seven cases) were due to inability to physically mobilize the lung, and the operation was abandoned without harm to the patient. Other failures can be avoided in future series of cases through more careful attention to detail.

Almost all serious difficulties encountered today are concentrated within the first postoperative week. Once this period is safely past and the collapse well established, extrapleural pneumothorax becomes relatively easy to manage. The fear of late infection of the extrapleural space is not borne out by recent experience. With modern antibacterial drug therapy, serious infection of the extrapleural space is uncommon and the possibility of infection decreases with long-term drug therapy. Fluid, sufficient to require aspiration, may occur from time to time but usually disappears under simple management and is not troublesome. The aim should always be to keep the space dry. The problem of what to do with the extrapleural space when treatment has to be terminated should not be magnified. It is not the serious question one is usually led to believe. In most instances, based on present observations, the lung will reexpand, in others the residual space can be allowed to fill with serum, or safely converted into a selective oleothorax.

These remarks should not be interpreted as implying that a new wave of enthusiasm for use of extrapleural sur-

gery is in order or that other procedures should be pushed aside when plainly indicated or preferred. This would be highly undesirable and is certainly not the purpose of this paper. On the contrary, extrapleural pneumothorax, despite its many advantages, should not be undertaken lightly, for the immediate postoperative management is difficult, time-consuming, and full of pitfalls. Close attention to detail before, during, and long after the operation, and planned use of modern drug therapy are the determining factors in ultimate success. In contrast to thoracoplasty or resection, the extrapleural collapse necessitates constant attention. In fact, extrapleural collapse is a continuous long-term procedure, a one man task or a project for a closely working team. The operation, therefore, should certainly not be used in excess or when indications are lacking. On the other hand, when indications are clear, the gratifying late results fully justify all effort.

SUMMARY AND CONCLUSIONS

There have been rapid and radical changes in the treatment of pulmonary tuberculosis in recent years. Major emphasis today seems to be on drugs and resection surgery, despite the much-needed help available from collapse therapy. Careful study clearly indicates that both resection and collapse are needed, in different types of patients, and that collapse therapy remains an indispensable and important part of good treatment.

Collapse therapy has much to recommend it, the profound depressive effect on the tubercle bacillus is an exceedingly important factor, which is frequently not appreciated. Through closure of terminal bronchioles, collapse deprives the bacillus (a strict aerobe) of vitally needed oxygen, causes it to die or become attenuated, gives the body a chance to build immunity, and results in recovery. In this respect, collapse has one decided advantage over all present antituberculosis drugs. It acts as well against bacilli resistant to the drugs as against those still sensitive, and its effect lasts long after the drugs have lost their value.

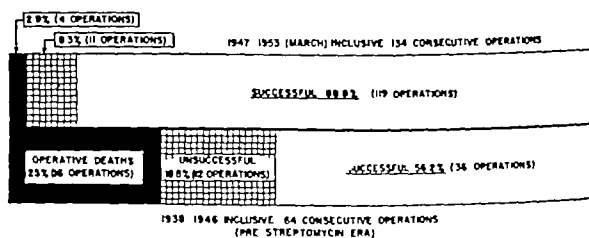


Fig 7—Comparative results in extrapleural pneumothorax.

What is surely needed, particularly for the patient with advanced disease, is a reversible form of collapse, similar to intrapleural pneumothorax but without its limitations or potential complications. Extrapleural pneumothorax, expertly performed and managed, admirably fulfills this need.

Since 1946, many important advances have been made in extrapleural collapse technique, which have freed this procedure of its former major complications and objections. Today it offers many advantages. 1 It is effective and well tolerated under a variety of unfavorable clinical

conditions at a time when other forms of surgery are unavailable or inadvisable.² Because it acts quickly, it offers a practical solution to social, economic, and public health problems.³ It disturbs lung function less, and because the collapse is reversible it salvages diseased lung tissue, important considerations in cases of recurring disease.

Seven cases of a consecutive series of 186 are reported to demonstrate the usefulness of extrapleural collapse in acute progressive tuberculosis, uncontrolled hemoptysis,

advanced bilateral fibroulcerative tuberculosis, and in elderly and young patients.

Despite its many advantages, extrapleural collapse should not be undertaken lightly or when indications are lacking. The postoperative management is difficult, exacting, and time consuming. Moreover, the procedure is followed by a protracted refill period. But when indications are clear, the excellent late results fully justify all effort.

2109 Spruce St

IMPENETRABLE CICATRICAL OBLITERATION OF THE THORACIC ESOPHAGUS

TREATMENT BY COMBINED THORACOTOMY AND ENDOSCOPY, WITH REPORT OF TWO CASES

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and

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In the majority of cases of cicatricial esophageal stricture caused by ingestion of caustics, such as sodium hydroxide (lye), the lumen is safely penetrable endoscopically and dilatations, either peroral or retrograde, through a gastric stoma, can be carried out in an efficient manner, with good anatomic and functional results, when handled by a competent bronchoesophagologist. The combination of peroral and retrograde esophagoscopy with stereofluoroscopy can accomplish much in enabling the endoscopist to penetrate the strictured portion completely and safely, however, in about 3 to 5% of cases more radical measures are needed.¹

Adams and Hoover^{1b} apparently can be credited as the first to have employed thoracotomy in combination with endoscopic treatment of a corrosive stricture of the thoracic part of the esophagus. The obliterated portion was perforated by a metal suction catheter introduced into the distal part of the esophagus through a gastric stoma. Then a thread, which previously had been placed in the proximal portion of the esophagus, together with sodium chloride solution, was aspirated into the distal portion. Shortly thereafter, Barreto,^{1a} working independently, devised more efficient instruments with which to carry out this recanalization. He, in collaboration with de Freitas,² in São Paulo, Brazil, performed the first operations. Later, in 1947, Botelho,³ also in São Paulo, employed Barreto's technique in two cases.

In our series of 40 cases we employed Barreto's^{1a} method in 2 and were successful in both. The technique we employed is as follows. With the patient supine, anesthesia is induced by means of intravenous injection of pentobarbital sodium and an intratracheal tube is placed to enable respiration to be mechanically controlled. Retrograde esophagoscopy is carried out via a gastric stoma constructed at a previous operation. The esophagoscope is advanced through the cardia as far into the esophagus as the obstruction permits. The instrument is anchored to the abdominal wall with adhesive tape. Next, peroral esophagoscopy is carried out, using a scope of wider diameter than the first. This instrument

is carried as far down as possible into the esophagus and is anchored to the patient's mouth with tape.

The patient is then moved to a left lateral position, in preparation for right thoracotomy. Access is through an intercostal space or the bed of a resected rib. Usually the fifth, sixth, or seventh rib is removed to gain access to the midthoracic segment of the esophagus. The patient is then anesthetized with nitrous oxide and oxygen supplemented by curare. The patient's abdomen is placed as near the edge of the operating table as possible, and the sterile drapes are so placed as to leave an ample screened-off space in which the esophagoscopist who handles the retrograde scope can work with ease. The main maneuvers will be carried out through this scope. It is helpful to this endoscopist to see, also extra-esophageally, the progress of his maneuvers. For this purpose a fairly large mirror may be placed above the thoracic operative field in such a way as to permit all movements of the retrograde scope to be reflected and seen by the esophagoscopist from his position at the proximal end of the abdominally-placed scope.

The lung is retracted anteriorly, and the mediastinal pleura is cut longitudinally to expose the desired segment of esophagus. There is no need to crush the phrenic nerve, since the diaphragm need not be immobilized. Depending on the upper level to which the esophagus has to be mobilized, it may be necessary to section, between ligatures, the arch of the azygos vein as it joins the superior vena cava. This was necessary in one of our cases, since the lower end of the upper scope could be felt and the glow from the illuminating bulb could be seen through the esophagus under this vein. The edges of the pleura are dissected anteriorly and posteriorly and retracted by

1 (a) Barreto P. M. *Atresias do esôfago* read before the First Pan American Congress of Otolaryngology Chicago 1946 reviewed *Rev paulista med* 32:250 (April) 1948. (b) Adams R. and Hoover W. B. *Corrosive Stricture of the Esophagus with Function Restored by Combined Surgical and Endoscopic Treatment* Report of a Case *Lahey Clin Bull* 3:250 (April) 1944.

2 de Freitas J. M. cited by Barreto^{1a}

3 Botelho J. A. de A. in discussion on Barreto^{1a}

means of long, thin threads of silk tagged with forceps. These threads may be used later to suture the mediastinal pleura.

The esophagus is then carefully dissected out of its bed and is mobilized enough to straighten its normal curvature and permit the esophagoscopes to be placed

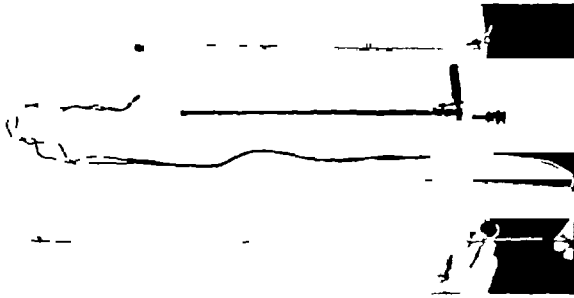


Fig 1—Instruments used for recanalization of the esophagus with cicatricial atresia from below upward (1) cannula in left hand and proximal end of screwed in stopper in right hand (2) long needle with triple cutting edges at tip threaded with double strand of no. 2 cotton thread (3) smaller esophagoscope used in a retrograde direction through gastric stoma and (4) larger scope with wider lumen used perorally

more nearly in the same axis. One will find at this point that it is possible to advance the scopes even further. Thus, their extremities can be more nearly approximated than was feasible previously. The dissection of the peri-esophageal tissue should be carried out away from the esophagus so as not to damage its muscle. Care should be taken also to preserve the vagus nerves. This dissection is the most delicate phase of the operation, and haste should not be allowed to defeat the purpose of the surgeon to preserve as much as possible of the wall of the esophagus. As the dissection progresses at the site of the involved segment, the number of muscular fibers that can be spared is unexpectedly large. Finally, a fairly muscular walled segment of esophagus is seen, although at first the esophagus appeared to be considerably destroyed.

At this point the esophagoscopist who handles the retrograde scope may begin his maneuvers in collaboration with the surgeon. The instruments are represented in figure 1. A long, thin cannula, supplied with a stopper that is screwed in at the proximal end, is advanced through the lumen of the retrograde scope. It is found that the cannula can be advanced further than the scope into a narrowed portion of lumen that tapers off into the obstructed portion. Then the surgeon, using cotton gloves over his rubber ones to prevent slipping, "dresses" the esophagus over the end of the cannula, making it advance now even further. The ends of the scopes are now found to be apart only half the distance that was seen between them in the roentgenogram taken preoperatively (Compare figure 2B with figure 2C).

The stopper now is removed from the cannula, and a long needle (fig 1), with three cutting edges at the tip, is introduced through the cannula and made to perforate completely the atresic esophageal segment. This is done under the direct guidance of the surgeon, who conducts the needle safely into the wider lumen of the upper scope. Any inadvertent perforation can be sealed immediately by the surgeon. The esophagoscopist whose instrument is above the stricture sees the tip of the needle

as it emerges in his field. Already it is threaded with a double strand of no. 2 cotton thread. The needle is pulled out through the upper scope, and the cotton threads are left in place. The upper ends of the threads are brought out through a nostril and are tied to the lower ends, which make their exit through the gastric stoma. Figure 2B is a roentgenogram taken in the course of the operation, with the two scopes, the cannula, and the needle passing into the lumen of the upper scope.

The dissected segment of esophagus is then encircled by strands of oxidized cellulose gauze, which are left in place. The mediastinal pleura is sutured. The lung is allowed to reinflate, and the thoracic wall is closed except that a catheter is left in the pleural cavity for drainage through the 10th interspace. Continuous underwater sealed suction is employed. The catheter may be removed after 24 or 48 hours and the patient allowed to get up.

The threads are replaced every five days to prevent deterioration. Retrograde dilatations effected via the gastric stoma may be begun 5 to 10 days postoperatively. A "train" of three consecutive rubber Tucker bougies is used at each session. This is continued periodically until metal dilators can be introduced perorally, just as they are employed in treatment of any partial or incomplete esophageal stricture. The patients should be followed closely for the first months and periodically thereafter. During the process of epithelization, small exuberant areas of granulation tissue should be carefully cauterized endoscopically.

REPORT OF CASES

CASE 1—A woman, 23 years old, related that accidentally she had ingested sodium hydroxide 20 years previously. Some form of bougienage had been attempted. When the patient



Fig 2—Roentgenograms taken in case 1. A: preoperative roentgenogram demonstrating complete obliteration of the thoracic portion of the esophagus at a level about 5 cm below the arch of the aorta. B: roentgenogram taken in the course of the operation showing the ends of the two scopes, the tip of the cannula coming out of the lower scope, and the needle already introduced through the cannula and into the lumen of the upper scope. C: anteroposterior roentgenogram showing obliterations of the esophagus from the level of the 7th to level of the 10th thoracic vertebrae. This distance was considerably decreased at operation.

was 3 years of age gastrostomy had been performed for feeding. The gastric stoma had been kept open by permanent use of a thick rubber tube. Through this all nourishment and water was instilled. The patient had to regurgitate swallowed saliva

every hour or so. Two hours was the most that could elapse without regurgitation. From lack of chewing the patient had lost all her teeth, and upper and lower plates had been placed. The woman was undernourished and underweight. Physical examination otherwise gave essentially normal results, and results of routine laboratory examinations were reported to be within normal limits. Roentgenograms of the esophagus after she had swallowed a suspension of barium appeared

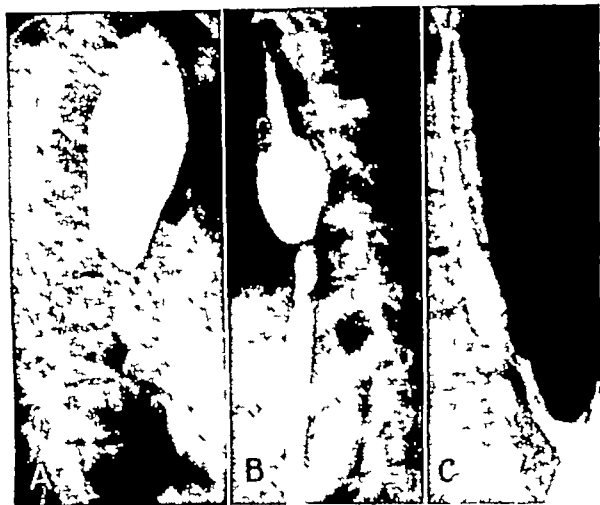


Fig 3—Roentgenograms taken in case 2. A, preoperative roentgenogram showing lower end of proximal part of esophagus at a level 5 cm below the aortic arch. Other examinations failed to demonstrate a lumen immediately below the level of the obstruction. B, roentgenogram taken three weeks postoperatively and after two weeks of treatment; the patient had undergone four dilatations and could eat any pasty food and liquids liberally. C, recent roentgenogram showing normal roentgenologic appearance of the esophagus.

as in figure 2A. Similar roentgenograms were made using more fluid contrast mediums. Simultaneous peroral and retrograde esophagoscopy (fig 2C) was carried out. Multiple attempts to penetrate the obstructed esophageal segment failed.

After the patient had reached a good nutritional state, recanalization of the esophagus by means of bidirectional esophagoscopy and thoracotomy combined was carried out with the technique previously described. The thorax was entered through the bed of the resected sixth rib on the right side. The arch of the azygos vein, as it entered the superior vena cava, had to be sectioned between ligatures.

The postoperative course was uneventful. The pleural drainage tube was removed 24 hours postoperatively, and the patient was out of bed 24 hours later. Retrograde dilatations with rubber Tucker bougies were begun five days postoperatively. Use of these was followed by employment of oral metal dilators. The patient was eating everything she wished about three months postoperatively. Six months after the operation roentgenograms disclosed that the upper third of the esophagus was moderately dilated and that the lumen was slightly narrowed at the old site of stenosis. Fourteen months have elapsed now since the operation. Recently, on esophagoscopy, the recanalized segment was seen to be completely epithelized.

CASE 2—A woman 19 years of age, related that she had ingested sodium hydroxide for suicidal purposes almost three years prior to her admission. Bougienage had not been attempted. A gastric stoma had been constructed, through which all food was instilled. The preoperative roentgenogram of the esophagus is represented in figure 3A. Similar roentgenograms were made after the patient had swallowed more fluid contrast mediums. Simultaneous peroral and retrograde esophagoscopy, with insufflation of air, was carried out. Multiple attempts at penetrating the obstructed esophageal segment failed. The patient was undernourished and underweight. Physical examination otherwise gave essentially normal results, as did routine laboratory examinations.

After adequate preoperative preparation, including use of a high caloric, high protein diet and vitamin supplements, the operation described earlier was carried out. The right side of the thorax was entered through the bed of the resected sixth rib. The arch of the azygos vein was left intact. The pleural drainage tube was removed 48 hours postoperatively, and the patient was allowed to get up. The postoperative course was smooth.

Figure 3B is a roentgenogram of the same patient three weeks postoperatively and after two weeks of treatment. Dilatation had been done four times. The proximal portion of the esophagus is still somewhat dilated, and a short part of the lumen is still narrowed. Figure 3C shows that the roentgenologic appearance of the esophagus is normal. Esophagoscopy examinations by two of us (R. M. R. and F. C. C.) revealed that the esophagus was normally epithelized.

This woman was operated on more than a year ago. The gastric stoma closed spontaneously, and the functional result was excellent.

SUMMARY

In two cases of esophageal stricture caused by ingestion of sodium hydroxide (lye) thoracotomy and endoscopy, according to the technique of Barreto, were successfully applied. Esophagoscopes were introduced nearly simultaneously, one through the mouth and the other through a previously made gastric stoma. Thoracotomy was performed and the esophagus exposed. In one case the arch of the azygos vein had to be cut between ligatures. The exterior of the esophagus as it lay in the surgeon's field was made visible by means of a mirror to the endoscopist who handles the retrograde instrument. The upper and lower portions of the esophagus were brought into the same axis, and the distal ends of the two esophagoscopes were approximated as closely as possible. A long cannula was introduced through the retrograde scope and advanced into the narrowed portion of the esophagus below the stricture. The surgeon "dressed" the esophagus over the cannula as far as possible. A long needle, bearing threads, was introduced through the cannula and was thrust through the atresic portion of the esophagus into the upper esophagoscope. The threads, brought out through a nostril and the gastric stoma, were used to carry dilators. The patients were promptly out of bed. Results were excellent.

Rua Debret 23—s 513 (Dr Barbosa)

The General Practitioner.—General practice, no less than the specialties, needs a leavening of exceptionally able men and women.

Prompt and accurate diagnosis is the foundation of successful general practice. The function of the family doctor is to understand the health problems of his patients and to recognize early the nature of their troubles. This is a large order, for his patients are unselected. They come to him with complaints that may be trivial or serious, obvious or obscure, real or imagined, simple or complicated. He must sort them out. In doing so he recognizes those needing immediate treatment from those requiring more observation and study. He decides whether he can treat the patient himself, or if help is necessary. Frequently this latter decision bears little relationship to the seriousness of the condition. He may be able to care for the most serious as well as anyone else. The first diagnosis is often the most important. Making this correctly is not easy, but it steadily is being made easier through the many aids and facilities being placed at the disposal of the family doctor.—W. V. Johnston, M.D., The Changing General Practitioner, *University of Western Ontario Medical Journal*, March, 1953.

CURRENT THERAPY OF GOUT

Charley J Smyth, M D., Denver

Although there is no known cure for gout, the control of the frequency and severity of acute attacks is satisfactory with the measures available. Failure to recognize and manage acute gout leads to much unnecessary suffering and ultimate deformity. Since recent studies point to the hereditary etiology of gout,¹ relatives of patients with active gout who have hyperuricemia should live moderately and avoid obesity, fatigue, exposure to extremes of temperature, excessive trauma to joints, excessive intake of foods high in purines, and all known provocatives of acute gouty arthritis.

A consideration of the treatment of gout must, by the very nature of the disease, be divided into two parts. The now well-known diagram of Dr. Philip Hench (fig. 1) illustrates the typical pattern of the disease and indicates the pretophaceous or first stage, characterized by acute recurrent arthritis with complete remissions, and the tophaceous stage, characterized by chronic arthritis with

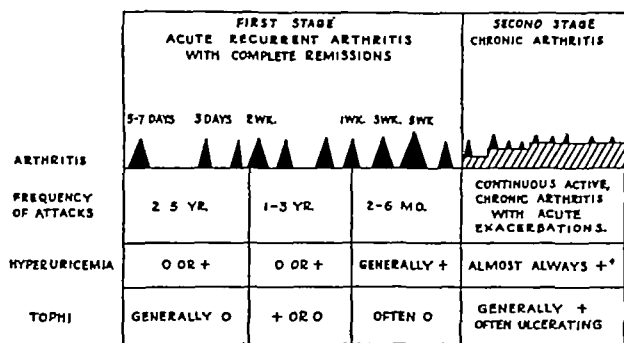


Fig. 1—The basic pattern of the course of gout and gouty arthritis (P. S. Hench 1936)

acute exacerbation. During the first stage, the problem of therapy is the management of the acute attacks and measures employed in the intervals to prevent future attacks. In the second stage, the aim of therapy is to relieve the pain of chronic gouty arthritis and to ward off or delay development of the complications of the disease, among which are nephrolithiasis, cardiovascular lesions, and tophi.

TREATMENT OF ACUTE ATTACK

In contrast to most of the other forms of arthritis, the treatment of gout is relatively effective, especially treatment of the acute attacks, results of which are frequently dramatic. In this discussion of current therapy, the traditional measures will be reviewed briefly and the new developments will be emphasized.

Rest—Absolute bed rest, with elevation of the affected part and no weight bearing until the acute pain and tenderness have disappeared, is recommended. The affected part should be temporarily immobilized by means of a

light splint and protected from bedclothes by the use of a cradle.

Drugs—Colchicine. At the first appearance of symptoms of a gouty attack, colchicine, the alkaloid of colchicum, should be taken. Colchicine alone is still the treatment of choice for acute attacks of gout. The recommended dose is 0.5 mg (1/200 grain) in tablet form every hour or two hours until pain is relieved or until diarrhea, nausea, or vomiting occurs. About 10 tablets of colchicine are required in the average attack of gout although the dose may vary from 8 to 16 tablets. Many patients learn by experience the optimum number of tablets to take with each attack, so that alleviation of joint pain may be attained without undesirable gastrointestinal symptoms. The secret of effective therapy is to begin use of colchicine at the very first warning and to use enough to produce some nausea or a loose bowel movement. Use of camphorated opium tincture (paregoric) may be necessary to control the toxic symptoms. The patient should always carry a supply of this drug and start taking the pills at the first appearance of symptoms of a gouty attack. Delay of treatment for a few hours after the onset of acute symptoms may increase the severity and prolong the duration of the acute episode. Response to the drug is often dramatic. Joint pains and swelling begin to subside about 12 hours after the institution of therapy, and, in most instances, pain is completely relieved in from one to two days. Over 95% of acute attacks are materially benefited by a single course of colchicine. Should no benefit occur, a second course of colchicine should be given after an interval of three days; repetition of a course sooner may precipitate gastrointestinal symptoms. The mechanism of action of colchicine is unknown. It does not act through the mechanism of corticotropin (ACTH). Recent studies using isotopically labeled uric acid suggest that colchicine might decrease the rate of uric acid synthesis.³

Corticotropin and Cortisone. The close relation between gouty arthritis and adrenal cortical function was demonstrated by independent investigators soon after corticotropin⁴ and cortisone⁵ were introduced. Gouty persons excrete subnormal amounts of 17-ketosteroids, usually about one-third of the minimal normal value for adult men.⁶ A second endocrine disturbance characterized by disturbed regulation of the rate of excretion of 11-oxysteroids has recently been demonstrated in patients with clinical gout.^{2b} Further evidence to establish acute gouty arthritis as a true endocrine deficiency state are the pronounced biochemical changes and clinical effects of the administration of corticotropin and cortisone in the gouty person. These hormones are capable both of provoking attacks of acute gouty arthritis in patients with quiescent gout and of causing prompt amelioration of acute gouty arthritis. Typical acute attacks of gout may be precipitated in a large proportion of interval gout patients by the administration and then withdrawal of corticotropin. In most patients the joint symptoms begin within 96 hours. This observation has led to the conclu-

From the Department of Internal Medicine, University of Colorado School of Medicine.

Read at the Sixth Clinical Session of the American Medical Association, Denver, Dec. 4, 1952.

Because of space limitations the bibliographic references have been omitted from THE JOURNAL and will appear in the author's reprints.

sion that, following the withdrawal of corticotropin there is an 11-oxysteroid lack, which in the normal adult is terminated by a short period of "rebound" 11-oxysteroid excess, in the gouty person this "rebound" appears deficient, and gouty attack occurs during this period of induced relative 11-oxysteroid deficiency

When corticotropin is given to a patient during an acute attack, the symptoms promptly disappear. This rapid control may sometimes result from a single injection of 50 mg. When the hormone is withdrawn, a state of 11-oxysteroid lack is once again induced, and many patients experience a recurrence of their attack within a few days. This tendency of acute gout attacks relieved by corticotropin therapy to return after hormone withdrawal limits the use of this hormone as the sole therapeutic agent for acute gout. Fortunately, colchicine given during or immediately after treatment effectively overcomes this tendency and permits full advantage to be taken of the rapid termination of an acute attack that corticotropin can produce.⁷ In the majority of acute attacks treated by concurrent administration of corticotropin and colchicine, a single 50 mg dose of corticotropin effectively terminates the attack within four hours, in a few patients a second or a third dose at six hour intervals is required. Colchicine administration is begun at the time corticotropin is given. The dose of colchicine is 0.65 mg (1/100 grain) four times daily until the first gastrointestinal symptoms of intolerance occur, then for 24 hours no colchicine is given. Administration of colchicine is resumed in a dose of 0.65 mg three times daily for at least two weeks. Except in a few patients, combined corticotropin and colchicine therapy has proved effective in preventing recurrences. This new regimen is rational and appears to be the most rapid and effective method available for treatment of acute gouty arthritis.

Phenylbutazone Phenylbutazone (Butazolidin) has a pronounced beneficial effect in the treatment of acute gouty arthritis.⁸ It is a new synthetic pyrazol derivative, entirely unrelated to the steroid hormones, having the clinical designation 3,5-dioxo-1,2-diphenyl-4-n-butylpyrazolidine. Phenylbutazone was developed as a solvent of the relatively insoluble aminopyrine, and its first clinical use in various rheumatic diseases was in combination with aminopyrine in a preparation known as Irgapyrin in Europe and Butapyrin in the United States. Since July, 1951, phenylbutazone has been investigated extensively⁹ and found to be as effective as the previously used mixture with aminopyrine. It is available for oral use in tablets containing 100 or 200 mg or for intramuscular administration in a 20% solution. The average effective oral dose is 600 to 800 mg daily in divided amounts, the usual intramuscular dose is 5 ml.

The clinical response is excellent in most acute episodes of gout that have been reported. Among the various rheumatic disorders treated, the results in acute gout are perhaps the most spectacular. With oral administration of this preparation, objective improvement of the affected joints is generally apparent within 24 hours, and, with its parenteral use, there is usually pronounced subjective and objective relief within a few hours. The pathologically elevated plasma urate level generally falls to normal or almost normal within a few days of the start of therapy. This decrease is accompanied by a corresponding increase

in urinary excretion of urates. The results in one patient illustrating these changes are shown in figure 2. Note that in this patient phenylbutazone caused a reduction in the serum uric acid level and a sharp rise in the urinary uric acid level, with a corresponding elevation in the renal clearance of uric acid. The uric acid clearance returned toward normal when sodium bicarbonate was added to phenylbutazone. These observations are contrary to those of Kuzell¹⁰ and Kidd and co-workers.¹¹ In the experience of one observer, gouty patients preferred phenylbutazone to colchicine.¹² Undesirable reactions to phenylbutazone include morbilliform rash, edema, nausea, abdominal discomfort, anemia, vertigo, stomatitis, nervousness, thrombocytopenia, and agranulocytosis. In view of the short-term therapy required to control acute episodes of gout, it is unlikely that serious toxic manifestations will occur, however, the patient should be carefully watched for signs of toxicity.

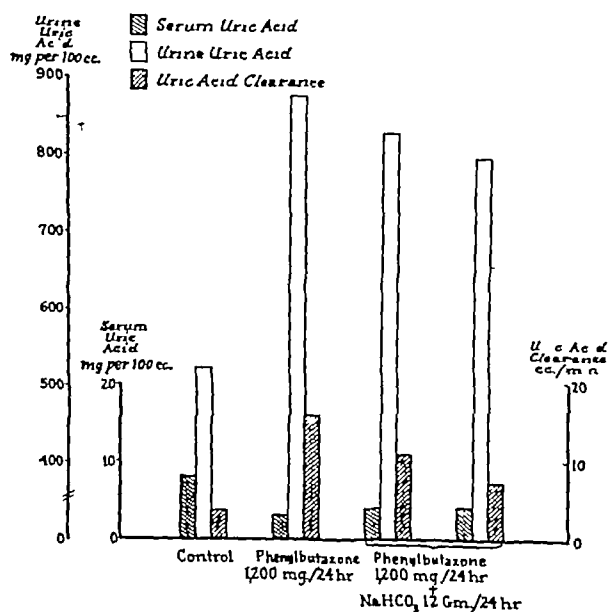


Fig 2—Effect of administration of phenylbutazone (1200 mg daily in four divided doses) on serum uric acid and urine uric acid levels and renal uric acid clearance in a 35-year-old patient who has recurrent attacks of gout.

Hydrocortisone Beneficial effects from the parenteral and intra-articular injection of hydrocortisone (compound F) have been observed by Hollander.¹⁰ It is not surprising that this adrenocortical steroid is capable of correcting the 11-oxysteroid lack, which is a basic metabolic defect in gouty patients with acute joint symptoms.

Diet—Diet during the acute attack should consist of milk, eggs, cereal, fruits, and vegetables with a low purine content. A large fluid intake is indicated, and all alcoholic beverages should be avoided.

INTERVAL TREATMENT

The management of the patient with gout is not completed when the acute attack is over. This is a chronic disease for which treatment must be continued indefinitely. The aim of treatment in the interval between attacks of acute gout is to avoid or postpone the number and severity of subsequent episodes. It is in the treatment of the gouty subject between acute attacks that encourag-

ing progress is being made, but, unfortunately for both the patient and the physician, such interval management is not ideal, and the clinical cure for chronic gout is still not a reality

In outlining a regimen for gouty patients during the intercritical and chronic gouty arthritis states attention is given to the following factors (1) restriction of activity and avoidance of excessive trauma, (2) abstinence from use of alcohol, (3) the use of one or more of the following drugs colchicine, probenecid (Benemid), phenylbutazone, cortisone, and cinchophen, (4) a diet low in purines and high in fats and carbohydrates, and (5) the care of tophi. Each of these measures deserves further detailed consideration

Activity—The pathogenesis of acute episodes that characterize this disease cannot be traced with certainty, but clinical observations for many centuries have established certain events as factors in precipitating an acute flare-up of quiescent gout. One of these factors is acute trauma to a joint. Unusual physical activity, such as excessive walking, will also precipitate a bout. A patient may be suddenly incapacitated by acute gout during his usual occupation and may attempt to place the blame on minor injury. To avoid unjust claims for an industrially connected or aggravated event, it is important to point out that dietary indiscretions, alcoholic overindulgences, minor surgical operations, the use of certain drugs (liver abstract, mercurial diuretics, or sulfathiazole), and exposure to cold and dampness are also provocative factors.

Alcohol—Despite abstinence from the use of alcoholic beverages many patients continue to have repeated bouts of joint pain. Although evidence of the therapeutic value of such abstinence is inconclusive, it is preferable that use of alcohol be avoided, except in small amounts, and these should be permitted only if the patient insists on this privilege.

Drugs—**Colchicine** There is a conviction among some physicians that colchicine has a preeminent place in the prophylaxis of acute gout in cases in which there are recurrences of acute severe attacks. In such cases the patient regularly takes 0.5 to 1 mg. every night. In 23 cases reported by Gutman¹¹ this daily ingestion of colchicine together with dietary restriction of proteins and purines has proved to be by far the most effective method of minimizing the frequency and intensity of acute gouty attacks. In some instances it has made the difference between virtual incapacitation and relatively normal activity. These patients are also taught to take larger abortive doses of colchicine on the first intimation of an attack, such as pain, stiffness, or other indisposition.

Probenecid Probenecid is a relatively nontoxic urate diuretic, which is effective in the treatment of the interval and chronic gouty arthritis stages of this disease. It was first introduced into clinical medicine as an adjunct to penicillin and *p*-aminosalicylic acid therapy. In patients with chronic gout it effectively lowers the serum urate level by blocking tubular reabsorption of glomerular filtered urates. The clinical application of probenecid was evaluated by Talbott¹² in more than 30 patients with chronic gout. With its use, blood uric acid levels promptly fell to normal and remained there even after prolonged therapy. The urinary uric acid excretion was increased

20 to 30%. Gutman¹¹ and Yu¹³ reported the results of the use of this uricosuric agent in 14 patients and concluded that probenecid was the most satisfactory urate diuretic for protracted administration, no new tophi developed in any of their patients with chronic tophaceous gout, and in several of their patients who had received protracted therapy there was disappearance or decrease in size of tophi together with reduction in swelling of chronically enlarged joints. Administration of 0.5 gm. daily for one week followed by 1 gm. daily in divided doses is recommended. This latter dose can be given for an indefinite period. Acute attacks of gout may develop soon after the onset of therapy, but their incidence diminishes with continued therapy. If an acute attack of gout occurs during therapy, probenecid should be continued and full doses of colchicine should be administered. When aspirin is given simultaneously with probenecid, the action of the latter drug in lowering the serum urate level is completely annulled.¹⁴ Therefore, salicylates should not be given in conjunction with probenecid, either for an analgesic or a diuretic effect. Thus far, there have been no indications of aggravated renal damage owing to the increased excretory urate load on the kidneys produced by this agent. To summarize, probenecid is of value in the long-term control of chronic gouty arthritis, it is of no value in acute attacks of gout. Although experience is limited, it appears that mobilization of gouty tophi by the protracted use of this uricosuric agent may be accomplished.

Phenylbutazone Reports of the clinical evaluation of phenylbutazone in the second stage of gout (chronic gouty arthritis and superimposed attacks of acute gout) are few. Kuzell¹⁵ has treated 58 patients with chronic gout with phenylbutazone and compared the results with those in 41 other patients with chronic gout who received Butapyrin. In this comparative study there was no significant difference in the therapeutic response to Butapyrin and phenylbutazone. In 36 patients with chronic gouty arthritis maintenance therapy was employed. Twenty-seven of the 36 had decreased frequency of acute attacks as well as amelioration of the chronic gouty arthritis. Acute exacerbations in patients with chronic gout responded to increased amounts of the drug. The maintenance dose varied from 200 to 800 mg. daily. In this study most gout patients preferred phenylbutazone to colchicine. Steinbrocker and his associates¹⁶ administered phenylbutazone to 52 patients with painful muscular disorders, among these was one patient with chronic gout who was treated for three and one-half months, with great improvement. This patient considered his condition better during that time than when he had used cortisone. These early results are promising. Additional clinical trials are indicated to determine the incidence and severity of toxic effects. The influence of phenylbutazone on uric acid metabolism warrants extensive investigation.

Cinchophen The use of cinchophen in chronic gout is a controversial subject. Because of its toxicity and because the same results can be obtained without the risk of complications by the use of salicylates and probenecid, cinchophen should not be used in this disease.

Dietary Restrictions—It is widely accepted that the diet of the patient with chronic gout should be low in

purine-rich foods to relieve the already overburdened mechanism for the disposition of purines. There is no altogether convincing evidence to prove that adherence to a rigorous purine-free diet reduces the frequency of acute attacks or prevents chronic arthritis or the complications of gout. It is well established, however, that less uric acid is excreted in the urine when a regimen of reduced purine intake is followed. It appears unreasonable, therefore, to introduce unnecessary amounts of purines. A reasonably low purine intake can be obtained by eliminating sweetbreads, anchovies, sardines, liver, kidneys, and meat extracts, a restriction that offers no hardship to most patients. Further confusion with respect to the value of dietary restrictions has resulted from the recent demonstration by several groups of investigators¹⁵ using isotopically labeled carbon and glycine that synthesis of uric acid occurs regularly from the simplest nitrogen and carbon compounds. It is clear from this discovery that all proteins, fats, and carbohydrates must be regarded as potential precursors of uric acid and that complete control of uric acid formation by dietary regulation is impossible. Although the usefulness of dietary restriction is still not established, it seems advisable in patients with chronic gout to limit the purine as well as the protein intake.

Treatment of Tophi—If tophi of the hands or feet become large or ulcerate, excision with thorough débridement results in prompt healing and obviates the danger of infection and possible amputation. If the report of Yu and Gutman¹³ can be confirmed, the prolonged administration of probenecid would be useful in reducing the size of old, established tophi and removing the urates that are deposited in involved joints and bursae.

SUMMARY

In recent years, real progress has been made in the development of new methods for the management of gout. A more rational approach to therapy, based on knowledge of the basic mechanisms of the metabolic defect in gout obtained from new methods of investigation, especially the employment of isotopes, has developed. The establishment of gout as an endocrine disease occurring in persons with hereditary susceptibility permits the physician to promptly recognize and treat the early stages of gout. Within the past few years, several new drugs have been introduced that produce profound biochemical changes and definitely influence the clinical course of this disease. The hormones corticotropin (ACTH), cortisone, and hydrocortisone (compound F) have a dramatic effect on the acute episodes of gout and provide new tools for further investigation of the pathogenesis of this illness. The concomitant use of corticotropin and colchicine, as recommended by Wolfson, offers a promising new approach to the control of acute episodes of gouty arthritis. The prolonged administration of the urate diuretic drug probenecid (Benemid) effectively removes the urates that are deposited in the joints and bursae, and recent studies in a limited number of cases have shown that its long-term use reduces the size of established tophi. The spectacular results already reported indicate that phenylbutazone (Butazolidin) may be a useful drug in both the acute and chronic stages of this disease. If the occasional undesirable effects prove not to be serious hazards, this new pyrazole derivative will be a welcome addition to the growing list of drugs of value in this crippling disease.

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TRYPSIN INHALATIONS IN RESPIRATORY CONDITIONS WITH THICK SPUTUM

Leon Unger, M D

and

Albert Howard Unger, M D, Chicago

For many years one of us (L U) has been interested in securing an ideal preparation to dissolve the thick tenacious material that impedes the respiration of patients with bronchial asthma and other respiratory conditions. In 1937, in collaboration with Albert H Andrews, assistant clinical professor of bronchoesophagology at the University of Illinois Medical School, an aerosol was made of an enzyme derived from the fruit of the plant *Carica papaya* and was tested in animals and on 10 patients. The investigation, which was unpublished, was discontinued because of severe local reactions including bleeding and marked hoarseness. Recently, our interests were drawn to trypsin, a natural body enzyme that digests necrotic tissue without producing adverse action on living tissue. The effects of this enzyme on 73 patients are herewith reported.

PHARMACOLOGY

The highly purified crystalline trypsin used in this study and available as Tryptar is derived from mammalian pancreas and is found normally in the intestinal

tract. This enzyme has a broad spectrum of vigorous proteolytic action on protein, denatured protein, true peptones, respiratory and intestinal mucin, fibrin, and protein split products. The final degradation products of tryptic digestion are small polypeptides and some amino acids. Crystalline trypsin does not digest living tissue, since both serum and viable cells contain specific trypsin inhibitors as well as nonspecific inhibitory substances, which act as protective mechanisms against proteolytic digestion. This selectivity of digestion plus the absence

Tryptar was supplied by the Armour Laboratories, Chicago. Because of space limitations some of the tables have been omitted from THE JOURNAL and will appear in the authors' reprints.

Associate Professor (Dr L. Unger) and Clinical Assistant (Dr A. H. Unger), Northwestern University Medical School and Attending Physician, Wesley Memorial Hospital (Dr L. Unger).

Drs. Mary Karp, Jerome Head, Theodore Hudson, Edward E. Avery, Paul Rhoads, Jesse Waller, and Earl Zaus, Wesley Memorial Hospital, aided in the clinical studies. Dr Catherine H. Roth, Assistant Medical Director, the Armour Laboratories, assisted in the program of this study. La Verne LaMarche and Tybee Sue Meyers, technologists, gave many of the inhalations. Mr Robert R. Lee, technician in anesthesia, Wesley Memorial Hospital, gave assistance.

of antigenicity or sensitivity appealed to us, as well as to a number of other workers, as a preparation well worth investigation

PREVIOUS CLINICAL WORK

The first clinical paper presented on crystalline trypsin pertained to the significant value of its intrapleural administration in the sterilization of the disease process and reexpansion of the lung in selected cases of tuberculous and nontuberculous fibrinopurulent empyema.¹ This was followed shortly by articles² on the use of the enzyme in the local therapy of many suppurative and necrotic lesions, such as grossly contaminated amputation stumps, subcutaneous hematomas, chronic osteomyelitis, diabetic gangrene, slough wounds after failure of skin grafts, and decubitus and varicose ulcers. The use of trypsin by inhalation was commented on by one of us (L. U.),³ Roettig and co-workers,⁴ and Limber and co-workers⁵, the latter reported on studies undertaken in patients with active pulmonary tuberculosis who had tenacious sputum as well as in patients who had other conditions in which the high viscosity of the sputum presented a problem. Limber and co-workers⁵ stated that "In vitro 50,000 units of crystalline trypsin produces a dramatically rapid liquefaction in 25 cc samples of thick sputum obtained from patients with active pulmonary tuberculosis." This lysis was reflected by a decline in the measured sputum viscosity. Rabbits were also given trypsin in aerosol form and showed no marked histological deviation from the normal appearance of the tracheobronchial tree and lung parenchyma. These authors concluded that "Aerosol trypsin is relatively nontoxic, harmless to respiratory tissue, and does not impede ciliary action."

SELECTION OF CASES

The vigorous fibrinolytic properties of crystalline trypsin, plus its ability to cause digestion of respiratory mucin, indicated that the preparation should be of value in the treatment of disorders of the bronchial tree associated with hypersecretion and accumulation of fibrinomucinous sputum. Thus, this study, conducted both in the hospital and in the office, included a varied group of respiratory conditions, such as bronchial asthma and emphysema that had not responded to usual therapy, bronchiectasis,

infectious bronchitis and pneumonitis, acute atelectasis, and recently some work with bulbar poliomyelitis

ADMINISTRATION

Earlier in this study 125,000 to 250,000 units of aerosol trypsin was given routinely to all patients, however, because of frequent hoarseness at that time the initial dose is now 75,000 units dissolved in 1.5 cc of the aerosol trypsin diluent (Sorensen's phosphate buffer solution). The first follow-up dose consists of 100,000 units in 2 cc of the diluent, which is then increased to 125,000 units in 2.5 to 3 cc of the diluent. It has been observed that 50,000 units of trypsin dissolved in each cubic centimeter of the diluent provides a very satisfactory concentration for clinical results. When larger amounts of the enzyme are dissolved in too little diluent, the solution is viscous, it is apt to clog the baffle tubing of the nebulizer, and untoward reactions are more frequent. It should be mentioned that early in the study when hoarseness was not infrequent and when the initial dose was 125,000 units or more, the inhalations were probably given too rapidly and little stress was given to thorough rinsing of the mouth. Inhalations wherever possible are given every day or two, and the total number of administrations per patient has so far ranged from one to eight.

Before the inhalation, the patient is usually given 0.25 cc of a 1:1000 solution of epinephrine combined with 0.75 cc of a soluble antihistamine, such as methapyriline (Histadyl) hydrochloride or diphenhydramine (Benadryl) hydrochloride. These drugs dilate the bronchi and bronchioles, and the antihistamine possibly reduces the incidence of hoarseness and dyspnea. The "mask" method of aerosolization is used, which consists of rubber tubing extending from the oxygen tank to a DeVilbiss no. 40 glass nebulizer or a Vaponefrin plastic nebulizer. The latter nebulizer is attached directly to a BLB mask rebreathing bag apparatus, whereas when using the DeVilbiss nebulizer a "threaded connector" * covered with a short section of rubber Penrose tubing must be attached to the mask rebreathing bag apparatus. After placing aerosol trypsin in the nebulizer, the mask is strapped to the face with crevices being closed with cotton or moist gauze to prevent escape of the enzyme, and moist gauze dressings are placed over the patient's eyes. Usually 15 to 20 minutes are required to nebulize 2.5 cc of trypsin solution when using a flow rate of 4 to 6 liters of oxygen per minute.

In addition to the "mask" method, nebulizations may be given by the direct method using oxygen, the direct method using compressed air, or the direct method using a hand pump. The direct method using oxygen consists of rubber tubing extending from the oxygen tank to a glass Y-tube. The latter is connected by rubber tubing to a DeVilbiss or a Vaponefrin nebulizer, which is held between the teeth. During inspiration the open end of the Y-tube is occluded with the thumb to direct the flow of oxygen through the nebulizer. The direct method using compressed air consists of rubber tubing from the compressed air source to a glass Y-tube. The latter is connected by rubber tubing to a DeVilbiss or a Vaponefrin nebulizer. The direct method using a hand pump consists of a DeVilbiss hand pump, rubber tubing, and a nebulizer (combination 740). The hand pump may be operated by either the patient or another person.

1 Reiser H G, Roettig L C and Curtis G M. The Tryptic Debridement of Fibrinopurulent Empyema in Surgical Forum. Forum on Fundamental Surgical Problems 1950. Clinical Congress of American College of Surgeons Philadelphia. W B Saunders Company 1951 pp 17-24.

2 Reiser H G, Patton R and Roettig L C. Tryptic Débridement of Necrotic Tissue. A. M. A. Arch. Surg. 63:568-575 (Oct.) 1951. Samuels S S. Trypsin in the Treatment of Diabetic Gangrene. Angiology 2:589-590 (Dec.) 1951. Burleson J S. The Use of Trypsin in Post-operative Anorectal Surgery. Am J Proctol 3:59 (March) 1952. Chandler B F. Medical Débridement by Enzymatic Action. U. S. Armed Forces M J 3:1209-1218 (Aug.) 1952. Madden J F and Ravits H G. Enzyme Debridement of Indolent Infected Cutaneous Ulcers. J. A. M. A. 149:1616-1619 (Aug. 30) 1952. Reiser H G, Roettig L C and Curtis G M. Selective Physiologic Débridement with Topical Trypsin. Enzymes. Am J Surg 85:376-382 (March) 1953.

3 Unger L. On Use of Trypsin in Bronchial Asthma and Related Chest Diseases. In the Letters of the International Correspondence Society of Allergists. Columbus Ohio Jonathan Forman 1952 series 15 p 25.

4 Roettig L C, Reiser H G, Habeeb W and Mark L. The Use of Trypsin in Chest Diseases. Dis. Chest 21:245-259 (March) 1952.

5 Limber C R, Reiser H G, Roettig L C and Curtis G M. Enzymatic Lysis of Respiratory Secretions by Aerosol Trypsin. J. A. M. A. 149:816-821 (June 28) 1952.

* The Oxygen Equipment and Service Company of Chicago makes the threaded connector 6b for the BLB mask and the threaded connector 6c for the OEM mask.

In order to avoid nasal or oral irritation, patients are advised to inhale through the mouth and exhale through the nose during administration of the aerosol and, immediately after discontinuation of the treatment, to blow the nose and wash out the mouth with water and then to drink a glass of water

RESULTS

As can be observed in the tables, aerosol trypsin constitutes an ideal agent for removing from the respiratory tract thick sputum that the patient is unable to expel. Generally speaking, the thicker the sputum and the greater the volume the better are the results. In order to determine the efficacy of the inhalations, sputum was collected in a basin after some of the treatments and examined for color, mucoid plugs, and viscosity. It was noted that 14 of 19 patients with bronchiectasis with or without bronchial asthma obtained excellent relief after receiving two to eight inhalations with total dosage varying from 200,000 units to 2 million units. One patient who received 2 million units and one patient who received 1,750,000 units were each given four inhalations followed later by another series of four inhalations. Four of the five patients with acute atelectasis had excellent results from aerosol trypsin inhalations, it is unfortunate that in the first case aspiration through the bronchoscope was performed before the enzyme was available. Nevertheless, the many rales that were present after bronchoscopy disappeared after aerosol trypsin inhalations. In the last case the patient was in a terminal status before inhalations were begun, and even though he died 14 hours after the first inhalation he coughed up much thick sputum. In the other three patients the atelectatic areas vanished after the inhalations. Despite this small number of patients, it would appear that in acute and in impending atelectasis aerosol trypsin could well be an excellent substitute for bronchoscopic aspirations. It has been noted that in many of our patients inhalations of the enzyme produce a slight tickling sensation of the posterior pharyngeal wall, which stimulates coughing, this occurs even in surgical patients who have refused to cough or in whom coughing has been ineffectual due to postoperative pain. Seven of 11 patients with bronchial asthma plus infectious bronchitis or pneumonitis obtained excellent results. The infectious elements were quickly controlled, although the bronchial asthma did not respond as well. In paroxysmal bronchial asthma, aerosol trypsin produced excellent results in four patients (one was a repeat treatment on second admission), good results in one, and no results in two. These comparatively good results contrast rather sharply with the mediocre effects obtained with the use of the enzyme in chronic bronchial asthma associated with more or less emphysema. In this latter group of patients excellent relief was secured in only 5 of 31 patients, with good benefit in 9 patients, and no benefit in 17.

REPORT OF CASES

CASE 1—A white woman, aged 45, with bronchiectasis was admitted to the hospital May 17, 1952, because of increased dyspnea for the past month, fever, and bubbling rales. Bronchograms revealed a mild cylindrical and sacular bronchiectasis of the lower lobes of both lungs and of the lingular division of the upper lobe of the left lung. A consultant surgeon advised against lobectomy. On the fifth hospital day 250,000 units of aerosol trypsin was given. Within three hours

the patient filled an emesis basin with tenacious sputum. The next morning the temperature, which had been up to 101.8 F, was normal for the first time since admission, and remained normal until her discharge six days later. The daily sputum volume while she was in the hospital decreased from 100 cc down to 15 to 20 cc, and rales greatly diminished. She received three aerosol inhalations totaling 750,000 units. In October, 1952, wheezing and increased expectoration were brought on by a cold. Excellent results were again obtained with a series of three inhalations, each consisting of 125,000 units of aerosol trypsin. This patient will probably need aerosol therapy from time to time.

CASE 2—A white man, aged 49, had hypostatic pneumonia with atelectasis on the third day following a gastric resection. His morning oral temperature was 103 F, he was slightly cyanotic, and breath sounds were absent in the lower lobe of the left lung, because of pain he would not cough. Roentgenograms confirmed the diagnosis of atelectasis. A single dose consisting of 500,000 units of aerosol trypsin in 7 cc of Sorensen's phosphate buffer solution (trypsin diluent) was given by aerosol during a period of 40 minutes. The patient coughed during the entire inhalation and within 30 minutes following termination of treatment filled an emesis basin with thick yellow green mucus, and mucous plugs. His color improved remarkably, and a roentgenogram taken seven hours later with a portable x ray machine revealed no evidence of atelectasis, although some density was still present.

TABLE 1—Results Obtained with Aerosol Trypsin in Seventy-Three Cases

Diagnosis	No. of Cases	Results		
		Excellent	Good	None
Bronchiectasis with or without bronchial asthma	19	14	4	1
Acute atelectasis	5	4	1	
Bronchial asthma with infectious bronchitis or pneumonitis	11	7	4	
Paroxysmal bronchial asthma	7	4	1	2
Chronic bronchial asthma with emphysema	31	5	9	17
Total	73	34	19	20
Addendum				
Bulbar poliomyelitis with tracheotomy	8	5	3	

CASE 3—A white man, aged 56, had pulmonary disease for five years and was admitted to the hospital acutely ill, with marked dyspnea, orthopnea, and wheezing. Roentgenograms revealed marked bilateral infiltration with a suggestion of bronchiectasis, emphysema, and some fluid at the bases of both lungs. Following the administration of 0.5 cc of 1:1,000 epinephrine, the patient was given 125,000 units of aerosol trypsin. Within one hour he coughed up 150 cc of thick tenacious sputum containing many plugs. That night he slept well for the first time in three weeks, without dyspnea or orthopnea. On the following day, after the use of 250,000 units, the patient expectorated twice as much sputum. Transient hoarseness developed three hours after the aerosol was given. Roentgenograms taken three days later revealed dramatic clearing of the pulmonary densities. On this day two inhalations, each consisting of 250,000 units, were followed with expectoration of 250 cc of sputum. The clinical picture continued to improve, the vital capacity increased from 33% to 90% of normal, and he was able to walk up and down stairs without discomfort. The patient was discharged on the 10th hospital day and on readmission for a check up three months later was in good health. This patient also received injections of penicillin, and credit for his remarkable improvement must be shared by both procedures.

CASE 4—A white woman, aged 44, was admitted to the hospital with a diagnosis of paroxysmal bronchial asthma. She received four inhalations of 250,000 units each. After each administration several mucous plugs were coughed up, and the clinical picture improved daily. After the first inhalation a transient rash appeared about the margins of the mouth. Three months later when readmitted to the hospital, similar inhalations gave similar excellent results.

CASE 5—A white housewife, aged 64, was admitted to the hospital with chronic asthma, emphysema, and mild diabetes. She received three inhalations of aerosol trypsin (125,000, 75,000, and 100,000 units) over a period of seven days. There was no appreciable increase in sputum, and wheezing continued.

COMMENT

On the basis of the aforementioned data it is obvious that aerosol trypsin gives best results in patients with thick or copious sputum such as occurs in bronchiectasis or in acute atelectasis. Favorable results are also obtained in paroxysmal bronchial asthma and in patients with both bronchial asthma and pulmonary infections. The poorest results are in those with chronic bronchial asthma associated with emphysema. The amount of sputum induced by aerosol trypsin immediately following inhalations varied from a few cubic centimeters to as much as three emesis basins full of purulent material. As a corollary to the amount of expectoration, the chest findings are proportionately changed. In those patients who have profuse expectoration and bubbling rales, the dyspnea, wheezing, and cough usually decrease and rales disappear or are lessened. Aerosol trypsin inhalations do not constitute a cure, however, they provide temporary relief to many patients with respiratory disease. When sputum again accumulates, aerosol trypsin should be readministered, good results can again be expected.

TABLE 2—*Untoward Reactions Observed with 270 Trypsin Aerosol Inhalations in 73 Patients*

Transient hoarseness	14
Increased asthma	4
Rash about lips	1
Nausea and vomiting	1
Total reactions	20

Transient hoarseness occurred in 14 of 73 patients in whom a total of 270 inhalations were given (table 2), however, as studies proceeded, it was observed that the degree and incidence of hoarseness were considerably diminished by administering inhalations more slowly, by giving smaller initial doses, and by having patients wash out their mouths with water after each inhalation. Of the 14 patients with transient hoarseness, the reaction was severe in 3 but disappeared in a few days, some patients received additional inhalations with no recurrence of hoarseness.

In the latter part of our study each patient received 0.25 cc of 1:1000 epinephrine, and 0.75 to 1.0 cc of an antihistaminic preparation such as methapyrilene hydrochloride or diphenhydramine hydrochloride 15 to 30 minutes prior to aerosolization. The administration of these drugs probably increases the caliber of the bronchial tree to such a degree that aerosol trypsin reaches a larger area. Furthermore, it is possible that these drugs may have contributed to the lower incidence of hoarseness noted in the latter part of our study.

A temporary skin rash was observed around the margins of the lips in one patient, increased difficulty in

breathing in four patients, and caused nausea and vomiting in one patient when the aerosol was given. The latter patient expectorated large amounts of sputum and obtained good therapeutic results. There was no evidence of sensitivity in any of the patients, not even in those patients in whom therapy was resumed after having been discontinued for long intervals. One of the medical technologists has some burning of the eyes and rawness of the throat when administering the aerosol, and another technologist, who is allergic, has transient increase in coughing and rhinitis when not wearing a gauze mask.

SUMMARY AND CONCLUSIONS

Seventy-three patients with respiratory conditions with or without thick, viscous sputum were treated with a naturally occurring body enzyme—trypsin—in aerosol form. This enzyme, which is nontoxic and does not affect living tissue, lessens the viscosity of the sputum.

From the data obtained we believe the following conclusions may be drawn: 1. Inhalations of aerosol trypsin are extremely effective in ridding the upper part of the respiratory tract of thick sputum that the patient is unable to expectorate. 2. Excellent results were obtained in most patients with bronchiectasis, acute atelectasis, and bronchial asthma complicated with bronchitis or pneumonitis, good results were secured in paroxysmal bronchial asthma. We strongly recommend aerosol trypsin in these cases. The majority of patients with chronic bronchial asthma and emphysema received little or no relief, although a few were benefited. 3. Aerosol trypsin is a safe preparation to administer, and, when given in the manner used in the latter part of the present study, hoarseness, the only troublesome side-effect, became much less frequent.

ADDENDUM

With the loss of natural humidifying processes in the patient who has a tracheotomy, especially when he is in a respirator because of respiratory failure from acute bulbar poliomyelitis, dried respiratory secretions present one of the most difficult hurdles in management. The commonest respiratory disease found in these patients at autopsy is probably atelectasis, due partially to the passive activity of the iron lung and partially to mucoid plugs that occlude the bronchi and larger bronchioles. The poliomyelitis patients mentioned in table 1 are but a small number of those who received trypsin inhalations at several Chicago hospitals during the 1952 epidemic. Recently, several articles have appeared on the use of trypsin in selected poliomyelitis patients.⁶

The use of aerosol trypsin in the patient who had undergone a tracheotomy was of necessity different from the aforementioned technique. The DeVilbiss no. 40 nebulizer was used, and a small length of rubber tubing was attached to the mouth of the nebulizer, with the other end of the rubber tubing resting in the cannula of the tracheotomy tube. A flow of 6 or 7 liters per minute of oxygen was passed through the nebulizer. The patient was placed alternately on each side and on his back. One half to one hour after completion of the inhalation, the patient was placed in extreme Trendelenburg position, and tracheobronchial aspiration was done with a long suction catheter. During the aspiration, the patient was again turned from side to side to help postural drainage.

6. Steigman, A. J. and Scott, C. H. Trypsin in Poliomyelitis Patients with Tracheotomy. *J. A. M. A.* 150:1403-1404 (Dec. 6) 1952. Peck, M. E. and Levin, S. Atelectasis: Physiopathology and Treatment. Special Reference to its Occurrence in Bulbar Poliomyelitis and to a Suggested Therapeutic Aid by the Intrabronchial Administration of Trypsin. *J. Thoracic Surg.* 24:619-636 (Dec.) 1952. Enzymes and Tracheotomy annotations. *Lancet* 1:233 (Jan. 31) 1953.

CASE 6—A white woman, aged 28, was admitted to the hospital with acute bulbar poliomyelitis. She had undergone tracheotomy and had been in a respirator for 36 hours prior to trypsin inhalations. It was believed that the patient's airway was clear, since only a small amount of mucus could be suctioned through the trachea, however, during this period the patient became progressively more cyanotic, despite the fact that the respirator was in good working order. The patient was unresponsive immediately prior to and during the early part of the inhalation of 250,000 units of trypsin. The enzyme was nebulized directly into the trachea, and during the

administration she was rotated from side to side. One half hour after completion of treatment, the patient was placed in extreme Trendelenburg position and tracheobronchial aspiration was necessary for the next 70 minutes to remove all the mucus that drained into the trachea. The patient was greatly improved.

Aerosol trypsin may become an important procedure in the management of patients who undergo tracheotomies, especially in those with acute bulbar poliomyelitis.

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HYPERVENTILATION AND PSEUDOHYPOGLYCEMIC REACTIONS IN DIABETES MELLITUS

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Reactions that usually are regarded as hypoglycemic in origin quite frequently complicate the treatment of diabetic patients receiving insulin. When these are relieved by simple alteration in diet or insulin dosage, they do not become a matter of undue concern to either the patient or the physician. On the other hand, when they fail to be controlled satisfactorily by such measures, their management presents a perplexing problem. The lack of correlation that may occur between the clinical manifestations of reactions and the blood glucose level² adds further to the confusion.

Reactions of the latter type—where characteristic symptoms occur in the presence of normoglycemia or hyperglycemia—have been referred to as pseudohypoglycemic reactions.² The mechanism for these is not completely understood. Most investigators have sought to relate them to the physiology of diabetes mellitus and have postulated that they are due to some disturbance in the availability, transportation, or utilization of carbohydrate by the brain.³ Others, however, have presented evidence that reactions of this type may be caused by factors entirely unrelated to diabetes. In 1948 Fabrykant and Pacella reported on seven labile diabetic patients who had frequent pseudohypoglycemic reactions.² Because six of these subjects had borderline or abnormal electroencephalograms and three improved with anticonvulsant therapy, it was proposed that electrocerebral dysfunction was the basis for their reactions. (No explanation was offered for those of the seventh patient, who had a normal electroencephalogram and was unimproved by six weeks of Mesantoin [3-methyl-5,5-phenylethyl hydantoin] therapy.)

In the course of a study of the emotional status of a group of diabetic patients, the frequency with which symptoms of hypoglycemic reactions appeared in those who had excessive anxiety was striking. Also, an intimate temporal relationship between such symptoms and anxiety-provoking situations was apparent. When it was established that many of these reactions were of the pseudohypoglycemic type and none of the patients had significant electroencephalographic abnormalities, it seemed possible that some circumstance related to anxiety might be responsible for them. It is interesting that in

1936 Daniels⁴ pointed out the similarity between the clinical manifestations of hyperinsulinism and "anxiety neurosis" and subsequently Fabrykant and Pacella⁵ commented upon the resemblance of spontaneous hypoglycemia and "hysteria." No efforts were made to elucidate these clinical relationships, however.

The precipitation of hypoglycemia (as well as hyperglycemia) by emotional stress in diabetic patients has been reported by several investigators.⁶ Although such observations may pertain to reactions associated with hypoglycemia, they do not provide evidence regarding the possible relevance of emotions to reactions unaccompanied by abnormal depression of blood glucose.

Anxiety has been noted to be a common and prominent component of the personality patterns of diabetic patients.⁷ It is well recognized that anxiety is accompanied by physical manifestations that vary widely in their nature and severity. One of these is hyperventilation, which may produce alarming and occasionally incapacitating symptoms. The frequency with which overbreathing occurs in various types of emotional disorders has led to the recognition of the "hyperventilation syndrome" as a clinical entity.⁸ As shown in table 1, a comparison of the usual symptoms resulting from hyperventilation with those accompanying mild to moderate hypoglycemia shows a remarkable degree of similarity. In view of the foregoing considerations, the possibility that emotionally induced hyperventilation in certain diabetic patients might be the mechanism responsible for their nonhypoglycemic reactions seemed worthy of investigation.

METHODS AND MATERIALS

All diabetic patients admitted to the medical service of the university hospitals during a 12 month period who were between the ages of 21 and 50 years and who complained of frequent "insulin reactions" were studied. For the purpose of this investigation, however, those whose reactions always were accompanied by hypoglycemia and those who had proved cerebral dysrhythmia (three

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Owing to lack of space, the bibliographic references have been omitted from THE JOURNAL and will be included in the authors' reprints

patients) were excluded. Each of the remaining patients had a detailed evaluation by a member of the section of psychosomatic medicine and a social service interview, in addition to the usual medical history, physical examination, and appropriate laboratory studies.

During psychosomatic consultation a comprehensive description of each person's "insulin reactions" was recorded. Later in the interview, with the patient in the sitting position, a hyperventilation test (deep respiration at a rate of approximately 30 per minute for two minutes) was carried out. Throughout the course of this test a careful appraisal was made of objective and subjective symptoms. Finally, the patient's description of his "insulin reactions" and his response to hyperventilation were compared.

While hospitalized, all of the patients in this series had daily fasting blood glucose determinations (Folin-Wu). In many instances, blood glucose levels were obtained several times daily. In addition, an effort was made to

TABLE 1—Comparison of the Usual Symptoms and Signs of Hyperventilation and Hypoglycemia

Hyperventilation	Hypoglycemia
	Mild Manifestations
Dizziness	Dizziness
Apprehension	Apprehension
Weakness and fatigue	Weakness and fatigue
Paresthesias (extremities and face)	Paresthesias (extremities and face)
Palpitation and tachycardia	Palpitation and tachycardia
Sweating (flushing and pallor)	Sweating (pallor)
Disturbed vision (blurring)	Disturbed vision (blurring, diplopia)
Tremors	Tremors—trembling sensations
Headache	Hunger and headache
Nausea and gagging	Nausea
Shortness of breath	Vomiting
	Severe Manifestations
Panic and hysterical reactions	Apathy and confusion
Muscular hyperirritability (tetany)	Incoordination and ataxia
Syncope	Unconsciousness and convulsions

RESULTS

As presented in table 2, 14 patients (11 men and three women) ranging in age from 28 to 50 years (average, 37 years) were included in this study. With one exception, all were "unstable" diabetics who received insulin in doses of 20 to 70 units daily. Two patients were considered as having "brittle," four severe, and seven moderately severe diabetes mellitus. The remaining subject had mild diabetes that did not require the use of insulin for metabolic control. The duration of diabetes in this group ranged from 3 months to 21 years (average, 9 years). All of the patients had a recent history of frequent (daily to twice monthly) reactions that were attributed to hypoglycemia. During hospitalization 11 of

the group had an aggregate of 60 such reactions. The vast majority of these were considered to be "mild" in that they were manifested only by feelings of weakness, dizziness, sweating, nervousness, and/or hunger. Five reactions occurred that were "severe." These were accompanied by apathy, confusion, unconsciousness, and/or convulsions.

Without exception, each of the patients in the series was found to have personality features and emotional patterns regarded as characteristic of patients with diabetes mellitus and similar to those described by Daniels^{6a} and Hinkle and associates.^{6c} Excessive anxiety was discernible in all of them. Furthermore, their diabetes had become evident clinically in the wake of some particularly stressful life situation, and the subsequent course of the disease seemingly had been influenced by the instability of their emotional reactions.

Correlation of Blood Glucose Levels with Clinical Symptoms of Hypoglycemia—During 27 of the 60 reactions that occurred, blood samples for glucose determination were drawn before therapy was instituted. Blood glucose levels were found to be normal or hyperglycemic (range from 79 mg per 100 cc to 274 mg per 100 cc) in 16 and distinctly hypoglycemic (range from 60 to 40 mg per 100 cc) in 11. Included in the latter group were the five "severe" insulin reactions. In contrast to the foregoing, it was repeatedly demonstrated that blood glucose levels obtained at times when these patients were symptom-free were in the hypoglycemic range or, as was true in one case, were less than the levels associated with their reactions.

Response to Hyperventilation—As shown in table 3, all of the 14 patients were found to be hyper-reactive to hyperventilation, i.e., moderate to severe symptoms occurred with overbreathing for two minutes or less. It is noteworthy that, in four of them, hyperventilation produced such an effect within one minute and, in one instance, this occurred with merely "six deep breaths."

In eight patients (including the five who were markedly sensitive to hyperventilation), overbreathing produced symptoms identical to those of their usual reactions. In the other six their hyperventilation symptomatology was regarded as "similar" to that which characterized their reactions.

Electroencephalograms—The electroencephalographic records of eight of the patients showed low voltage, fast activity, two showed 7 to 9 per second waves in all leads, and four had 10 to 12 per second (alpha) activity. All were interpreted as being within normal limits. In only one instance was there alteration in the electroencephalographic pattern with three minutes of hyperventilation. This occurred in one of the 10 to 12 per second records (case 12) and consisted of slowing of the waves to five per second with a build-up in amplitude to 200 mv (grade 1.5) during the period of overbreathing.

COMMENT

The data presented show that in certain diabetic patients, reactions simulating mild to moderate hypoglycemia occurred as a result of hyperventilation. Thus, hyperventilation as well as cerebral dysrhythmia pro-

vides an explanation for pseudohypoglycemic reactions occurring in diabetes mellitus

Although the electroencephalograms of the patients in this series were consistently within normal limits, it is known that hyperventilation will uncover or potentiate otherwise unrecognized cerebral dysrhythmias.⁹ It also has been reported that the effects of hyperventilation are

presence of anxiety reactions and other psychoneurotic disorders has been emphasized in diabetes mellitus, the occurrence of the hyperventilation syndrome has not. Fortunately, it is a simple matter to test a patient's response to hyperventilation. If typical symptoms of a "reaction" are reproduced by such a test, the physician is afforded a clue that further evaluation of the patient's

TABLE 2—Summary of Data Relating to Diabetes and Pseudohypoglycemic Reactions in the Fourteen Cases Studied*

Patient	Age Yr	Sex	Severity of Diabetes	Duration of Diabetes, Yr	Type and Dose of Insulin Units	Blood Glucose Levels with Reactions Mg /100 Cc.		Blood Glucose Levels without Reactions Mg /100 Cc.
						Hypoglycemia	Pseudohypoglycemia	
1	33	M	Brittle	21	PZI 56	57	90	59 63 69
2	44	M	Severe	11	2 1 60	45 45 50	200	45 50 57 60
3	30	M	Severe	17	NPH 50	42	181	50 69
4	35	M	Brittle	10	2 1 60		70 63	50 53 57 59 67
5	33	M	Severe	12	NPH 60	No reactions in hospital		44 57
6	31	M	Severe	8	NPH 70	49	258	43
7	23	M	Moderate	1	2 1 44	53	107 112 114 150	54 59
8	36	M	Moderate	13	NPH 40		121	42 44 48 63
9	29	M	Moderate	7	PZI 45	No reactions in hospital		63 69
10	42	M	Moderate	15	NPH 35	No blood drawn with reactions		49 54 55
11	50	M	Moderate	½	PZI 20	49	80	60 60 67
12	30	F	Moderate	2	PZI 45	40 45 60	91 274	
13	33	F	Moderate	10	NPH 45	No reactions in hospital		57
14	48	F	Mild	9	None		141 143	120 187

* None of the patients had electroencephalographic abnormalities

TABLE 3—Comparison of Symptoms of Insulin Reactions⁷ and Hyperventilation in Fourteen Diabetic Patients

Patient	Symptoms and Signs of Typical Insulin Reactions	Symptoms and Signs on Hyperventilation Test	Comparison
1	Dizziness weakness nervousness shakiness sweating numbness shaking in the stomach	Dizziness weakness nervousness tremulousness sweating paresthesias shaking in the stomach	Identical
2	Dizziness weakness shakiness sweating	Dizziness weakness tremulousness flushing *	Identical
3	Dizziness weakness shakiness sweating	Dizziness weakness tremulousness sweating *	Identical
4	Weakness nervousness palpitation short of breath loss of control	Weakness fatigue tremulousness palpitation dyspnea	Similar
5	Weakness dizziness sweating numbness nervousness hazy feeling	Weakness dizziness paresthesias marked apprehension	Similar
6	Weakness dizziness palpitation hungry feeling	Weakness dizziness palpitation dryness	Similar
7	Dizziness weakness blurring vision fullness of stomach nervousness	Dizziness weakness diplopia upset stomach marked apprehension †	Identical
8	Nervousness sweating dizziness staggering	Marked apprehension flushing dizziness tremulousness	Similar
9	Dizziness weakness sweating shakiness	Dizziness weakness tremulousness	Similar
10	Dizziness weakness shakiness	Dizziness weakness tremulousness anxiety *	Identical
11	Pressure in head palpitation dizziness shakiness sweating weakness	Pressure in head palpitation dizziness tremulousness flushing weakness *	Identical
12	Sweating weakness faintness	Flushing weakness faintness	Identical
13	Weakness faintness nervousness	Weakness apprehension dizziness palpitation	Similar
14	Weakness nervousness shakiness faintness	Weakness apprehension tremulousness faintness	Identical

* These patients were hyper reactive to one minute of hyperventilation

† This patient was hyper reactive to six deep breaths

augmented in the presence of hypoglycemia.¹⁰ It is entirely possible, therefore, that hyperventilation may have broader ramifications as a mechanism of symptom production in diabetes than merely as an alternative basis for reactions operating in the absence of hypoglycemia and electrocerebral dysfunction

The hyperventilation syndrome and its diversified symptomatology are recognized readily in the psychoneurotic person who has excessive anxiety. While the

emotions and their relationship to the course of his diabetes is in order. Obviously, the successful management of such diabetic patients entails appropriate psychotherapy and correction of their faulty breathing pattern under stress, in addition to the usual medical measures

Unquestionably, most reactions in diabetic patients are hypoglycemic and likewise most are controlled effectively by manipulating the diet and/or insulin dosage. This is not true of all patients suffering from diabetes nor of all

reactions, however. Other causes for similar symptoms exist. When these are present, it is understandable why efforts directed solely at the regulation of carbohydrate metabolism prove ineffective in their control.

SUMMARY AND CONCLUSIONS

Detailed study of 14 diabetic patients who were having frequent "insulin reactions" revealed the following facts: 1. Reactions that were not accompanied by hypoglycemia occurred quite commonly in this group. 2. All of the patients were excessively anxious and also were hyper-reactive to two minutes of hyperventilation. 3. The symptoms incurred by overbreathing reproduced

in these patients their typical symptoms of "insulin reactions."⁴ None of the patients had electroencephalographic evidence of cerebral dysrhythmia (even with hyperventilation).

It is concluded that, when the hyperventilation syndrome occurs in anxious diabetic patients, it can produce symptoms that simulate, and thus are easily misinterpreted as, true insulin reactions. With the recognition of this role of hyperventilation and with institution of appropriate psychotherapy for its correction, the physician can be assured of more successful management in certain of his unstable diabetic patients.

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THE PRESENT STATUS OF PLASMA EXPANDERS

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The term "blood substitute," used extensively during World War I and at the beginning of World War II, has been abandoned, since it is agreed that there is no real substitute for blood either in content or in function. In addition, the use of this term is misleading, especially to the public, raising the question as to the necessity for contributions of blood for military and civil defense use or even for friends and relatives. Actually there is no substitute for blood plasma, but certain macromolecular colloidal solutions possessing some of the physical properties of plasma are capable of maintaining the circulating blood volume by virtue of their oncotic pressure, which attracts interstitial fluids into the blood vascular system. The large molecular size prevents their rapid escape into the tissues or through the kidneys until the blood volume has been restored to normal. The term "plasma expander" is now used by the National Research Council and seems the logical name for this group of substances.

The ideal characteristics of these substances have been variously described and defined by many workers. White and Weinstein¹ suggest a plasma expander to be "an agent which will overcome the disparity of the circulatory system that exists in shock, and thus tide a patient over a critical period until such materials as are specifically needed can be given, or the patient can himself manufacture and disseminate enough material to restore his own blood volume."¹ The desirable properties of a plasma expander should include a molecular size large enough for 50% to be retained for 24 hours, an isotonicity, sedimen-

tation rate, osmotic pressure, and viscosity comparable to that of plasma, a molecular structure allowing slow metabolism but not subject to prolonged tissue storage, freedom from pyrogenic, allergic, antigenic, or toxic qualities, and reproducibility and stability.

The earlier experimental and clinical attempts to utilize vegetable colloids having the oncotic properties of plasma, particularly acacia and pectin, proved disappointing chiefly because they produced marked agglutination of the red blood cells *in vitro* as well as sludging *in vivo* and prolonged storage in the tissues instead of metabolic degradation. These deficiencies were probably due to the size, shape, and chemical nature of their molecules. Oncley and his associates² offer tangible evidence to explain this in physical chemical studies of plasma proteins, showing that their molecular weights vary from 69,000 to over a million and that they are ellipsoid in shape, with only fibrinogen which has a maximum length of 500 Å, being in any way comparable to the long chain polysaccharide molecules proposed as plasma expanders. The Council on Pharmacy and Chemistry of the American Medical Association in 1951 reported that so far no blood substitute entirely free from disadvantages has been found. The selection of a foreign material that has the desirable characteristics of human plasma and that could be completely metabolized without producing toxic or allergic reactions would solve the problem.

METHODS OF EVALUATION

In addition to the physical and chemical requirements for plasma expanders, testing in larger animals and man is necessary as regards their effectiveness in hypotensive shock as well as their safety. Their effect in relation to the functional and structural integrity of the vital organs, particularly the lungs, liver, kidneys, and vascular system, must be ascertained.

For determining the relative effectiveness of plasma expanders in the restoration of blood volume after experimental hemorrhage, the methods reported by Bollman, Knutson, and Lundy³ are apparently simple and

Based on a paper that was read before the Section on Pathology and Physiology at the 101st Annual Session of the American Medical Association, Chicago, June 10, 1952.

1. White, C. S. and Weinstein, J. J. *Blood Derivatives and Substitutes. Preparation, Storage, Administration and Clinical Results Including a Discussion of Shock Etiology, Physiology, Pathology and Management*, Baltimore: Williams and Wilkins Company, 1947, p. 261.

2. Oncley, J. L., Scatchard, G. and Brown, A. *Physicochemical Characteristics of Certain of the Proteins of Normal Human Plasma*, *J. Phys. and Colloid Chem.* 51: 184-198, 1947.

3. Bollman, J. L., Knutson, R. C. and Lundy, J. S. *Symposium on Plasma Volume Expanders in Treatment of Shock: Volemic Substances for Replacement of Blood*, *A. M. A. Arch. Surg.* 63: 718-727 (Dec.) 1951.

accurate Rabbits, dogs, and rats were used. The typical experimental procedure included a hemorrhage of 20 ml per kilogram of rabbit body weight, immediately followed by a blood volume determination using erythrocytes labeled with radioactive phosphorus (P^{32}) and an estimation of the relative erythrocyte-plasma volumes from a hematocrit reading. Immediately after withdrawal of the three minute sample of blood used to determine the volume, the substance used to expand the volume was injected as rapidly as possible into the femoral artery by way of indwelling plastic tubes. Subsequent estimations of blood volume were then made by reverting hematocrit values taken at 15, 30, and 60 minutes as well as at 2, 3, 6, and 24 hour intervals to the original blood volume determination. Using this procedure, these workers show the relative effectiveness of several macromolecular substances in the maintenance of blood volume immediately after replacement and up to 24 hours.

Data⁴ relating to the distribution and storage of expanders may be obtained in the case of dextran and polyvinylpyrrolidone when these substances are labeled with radioactive carbon (C^{14}). With other macromolecules as well as with dextran and polyvinylpyrrolidone histological studies are indicated. In prolonged retention they are readily recognized through the presence of the phagocytized material in parenchymal cells, endothelial cells, and especially the reticuloendothelial cells.⁵ In addition material escaping into the tissues may produce a foreign body reaction or a granulomatous inflammatory reaction. The use of specific stains for these macromolecules affords additional evidence of their presence.

Experimental methods designed for evaluating the efficacy of a plasma extender in combating marked hypotension usually employ the hemorrhage and replacement technique. The method in which a single massive hemorrhage is continued until respiratory arrest or cessation of bleeding occurs and then the test substitute is employed for immediate replacement has been useful but is scarcely crucial enough for evaluation of hyperoncotic expanders currently being used. Therefore, the animal survival method used by Govier and his associates was our selection. It was employed with the advantage of coincident continuous blood pressure tracings.

Dogs, under light thiopental (Pentothal) anesthesia, were prepared for blood pressure recording from the right femoral artery and for bleeding from the left femoral artery. Intravenous infusions were made through the right femoral vein. The animals were subjected to three massive hemorrhages at 30 minute intervals, which would be fatal if untreated. Accordingly, in the first stage enough blood was removed to cause respiratory arrest, in the second 70% of the amount in the first stage was removed, and in the third 48% of the amount in the first. There was immediate rapid replacement after each bleeding with an equivalent volume of test substance. Blood for hematocrit estimation was drawn during each hemorrhage and 15 minutes after the end of the third infusion. The cannulated vessels were tied off, and the wounds were disinfected and sutured. The animals were considered to have survived the experiments if they lived for 24 hours after the end of the third replacement. As

data with this method accumulated, we were impressed with the marked individual variation in the experimental animals. It seemed expedient, therefore, to include another end point for the first hemorrhage as well as that laid down by Govier. In some animals, cessation of blood flow occurred prior to respiratory arrest and so was taken as an end point. In this series, the first massive hemorrhage equaled from 4 to 5% of the body weight. Consequently, 75 to 80% of the blood volume was replaced with plasma expander. At autopsy complete gross and microscopic examination of all tissues was carried out.

DATA

Hueper⁶ and others have pointed out that there are three classes of macromolecular substances found worthy of consideration as plasma extenders. These are proteins, including serum albumin, globulin, bovine plasma, and the gelatins, carbohydrates, including gum acacia, glycogen, pectin, dextran, and okra, and the synthetic polymer, polyvinylpyrrolidone.

Proteins as Plasma Expanders—Gelatin, the incomplete protein derived from the collagen of bones and skin and degraded by several different methods, has been widely used during the last war and is commercially available. The gelatin concentrations in solutions available vary from 3 to 6%, and the viscosities and oncotic pressures vary not only as to the percentage but also according to the amount and type of degradations. Gelatin (5%) supplied by the Upjohn Company has a relative viscosity of 8.12 to 14.0 and an oncotic pressure of 69 to 75 cm of water at 25 C while that supplied by the Baxter Laboratories (6%) has a relative viscosity of 5.45 and an oncotic pressure of 75 to 80 cm of water at 25 C. Both of these solutions solidify on refrigeration. These products apparently correspond to the commercial preparation of special gelatin solution, intravenous, which is degraded with heat for shorter periods and has an average molecular size of above 30,000. In 1942, Pauling and his associates⁷ prepared gelatin by using glyoxal and hydrogen peroxide to degrade the molecule to a smaller size. The resulting product, oxypolygelatin, has a molecular weight of about 30,000 to 40,000 and does not solidify at temperatures above 5 C. Oxypolygelatin, in 5% solution, has a relative viscosity of 2.25 and an approximate oncotic pressure of 39 to 45 cm of water at 25 C, both values being somewhat higher than those of plasma. Pulaski⁴ has recently mentioned a "fluid" gelatin, prepared by treatment with an aromatic amine that solidifies at 0 to 4 C in 6% solution. This report further states that in "hemorrhagic hypotensive

4 Pulaski E J. Clinical Status of Plasma Substitutes. *Chem & Eng. News* 30:2187-2189 1952.

5 Hartman F W. Symposium on Plasma Volume Expanders in Treatment of Shock. *Tissue Changes Following the Use of Plasma Substitutes*. A. M. A. Arch Surg 63:728-730 (Dec.) 1951.

6 Hueper W C. Macromolecular Substances as Pathogenic Agents, *Arch Path* 33:267-290 (Feb.) 1942. Hueper W C. Experimental Studies in Cardiovascular Pathology. Effects of Intravenous Injections of Solutions of Gum Arabic, Egg Albumin and Gelatin upon the Blood and Organs of Dogs and Rabbits. *Am J Path* 18:895-933 (Sept.) 1942.

7 National Research Council. Conference on Blood Substitutes, edited by D. H. Campbell and others. *National Research Bulletin* Washington 1949 appendix D p 73.

shock" the new preparation appears more effective than other gelatins or dextran. This product may be identical or at least similar to the "modified fluid" gelatin reported by Parkins, Perlmutt, and Vars.⁸

In combating hematogenic shock in dogs, the gelatins are effective not only in establishing a prompt rise in blood pressure but also in assuring recovery. Typical data, using plasmoid gelatin as the replacement fluid, are shown in figure 1. In the hemorrhage replacement technique employed, 100% or eight of eight animals survived with 5% plasmoid gelatin, 83% or five of six survived with 6% gelatin, and 67% or four of six survived with 5% oxypolygelatin. This indicates the superiority of 5 and 6% gelatin over 5% oxypolygelatin as a plasma expander.

Tissue changes produced by gelatin solutions consist chiefly of transient swelling of the tubular epithelium of the kidney and temporary storage in the liver and reticulo-endothelial system. Recent histological studies on rabbits who received 15 cc per kilogram every other day for five injections showed a giant cell reaction in the lung (fig 2A).

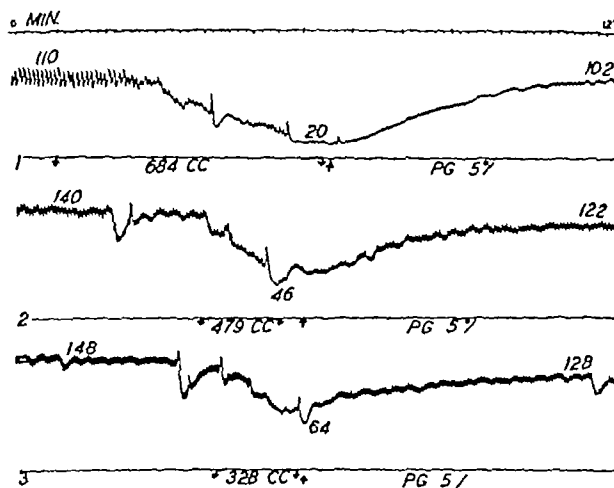


Fig 1—Effect on blood pressure of 5% plasmoid gelatin (PG) used as the plasma expander. A dog weighing 17.1 kg was bled until it lost 4% of its body weight after the 684 cc of blood was removed the hematocrit was 47.5% (1). Then it was bled for 70% of the amount of the first bleeding with the hematocrit being 28.3% (2) and finally for 48% of the first bleeding with the hematocrit being 14.8% (3). The blood pressure at the end of the third infusion of gelatin was 134 mm Hg and the hematocrit 12%. The dog survived. The arrows pointing down indicate the times of bleeding and ones pointing up the times of infusion of gelatin.

There is difference of opinion concerning the percentage of gelatin metabolized, but all workers agree that some of it is utilized. The excretion of gelatin by the kidney depends for the most part on the molecular size. As many as 50% of the molecules weighing over 30,000 to 35,000 are reported to be retained for 24 hours.

Carbohydrates as Plasma Expanders—Dextran, according to Bull,⁹ is a biosynthetic polysaccharide composed of glucose units produced by the growth of

Leuconostoc mesenteroides in sucrose through enzymatic action. As first precipitated with acetone, dextran appears as a sirupy gum with long chain molecules of such large size (probably at least 1 million) that degradation by acid hydrolysis is necessary to get a substance suitable for intravenous use. Many small molecules also result but the desirable range, about 75,000, can be obtained through fractional precipitation with acetone. Dextran (6%) supplied in limited quantities to us through the National Research Council is a pale straw-colored solution with a viscosity of 3.16 to 3.66 and an oncotic pressure of 65 to 70 cm of water at 25°C.

Dextran in 6% concentration has excellent characteristics for restoring the blood pressure following hemorrhage. In fact, the blood pressure elevation following three hemorrhages and replacements usually exceeds the blood pressure at the onset of the procedure, as illus-



Fig 2—A section of lung of rabbit which was killed after it was given 15 cc per kilogram of body weight of 5% oxypolygelatin every other day for five injections. Foreign body giant cells and a granuloma can be seen (medium power). B section of liver of rabbit which was killed after being given 15 cc per kilogram of 6% dextran every other day for five injections. The liver shows necrosis of the liver cells, foreign body giant cells, and round cell invasion (medium power).

trated in figure 3. The survival rate in these experiments with dextran was four of six animals or 67%. Studies in progress on this expander may raise this percentage.

When administered intravenously to mice and rabbits, it is well tolerated. Allergic reactions, as reported by Pulaski⁴ in rats and man, were not observed in our mice, rabbits, or dogs. Immature mice receiving 15 cc per kilogram of a 6% solution three times per week to a maximum of 46 injections continued to develop and to gain weight. Young rabbits averaging 2 kg in weight who received a comparable amount every other day for five injections showed no gross effects.

Bull and associates,⁹ Craig and others,¹⁰ and Pulaski⁴ have reported that dextran compares favorably with or

8 Parkins W M, Perlmutt J H and Vars H M. Dextran Modified Fluid Gelatin and Other Plasma Volume Expanders in Hemorrhaged Dogs. *Fed Proc* 2: 116-117 (March) 1952.

9 Bull J P and others. Dextran as a Plasma Substitute. *Lancet* 1: 134-143 (Jan 22) 1949.

10 Craig W M, Gray H K and Lundy J S. Symposium on Plasma Volume Expanders in Treatment of Shock. Present Status of Plasma Volume Expanders in the Treatment of Shock. *Clinical Results in Surgery* A M A Arch Surg 63: 742-749 (Dec) 1951.

is actually superior to other currently investigated expanders Pulaski states that after injection of C¹⁴-tagged dextran in the dog, the urine shows 65 to 70% of the radioactivity, with 4 to 6% in the expired CO₂ and 3 to 5% in the viscera at the end of 72 hours This indicates that at least 25% remains "lost" C¹⁴-marked material was found also in the liver, spleen, and lymph nodes The

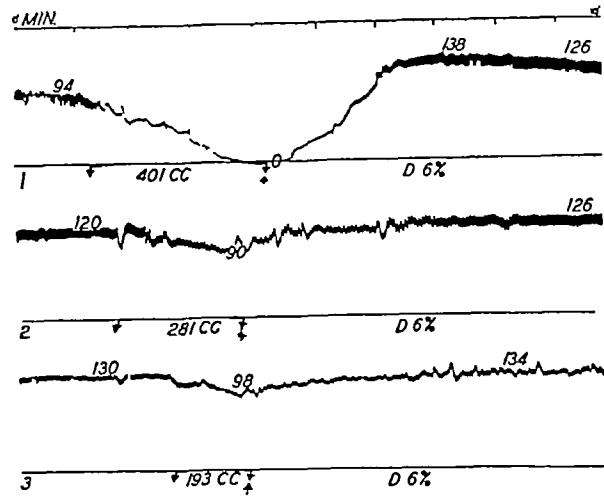


Fig 3—Effect on blood pressure of 6% dextran solution (D) used as the plasma expander A dog weighing 10 kg was bled until it lost 4% of its body weight after the 401 cc of blood was removed the hematocrit was 50% (1) Then it was bled for 70% of the first bleeding with the hematocrit being 22.8% (2) and finally for 48% of the first bleeding with the hematocrit being 10% (3) The blood pressure at completion of the third infusion of dextran was 134 mm Hg and the hematocrit 9% The dog survived The arrows pointing down indicate the times of bleeding and the ones pointing up the times of infusion of dextran

latter observation corresponds with our histological findings in mice and rabbits The production of foam cells in the reticuloendothelium of the lymph nodes and in the lungs in mice and focal necrosis of the liver in rabbits was most striking The pathological findings in the liver are shown in figure 2B

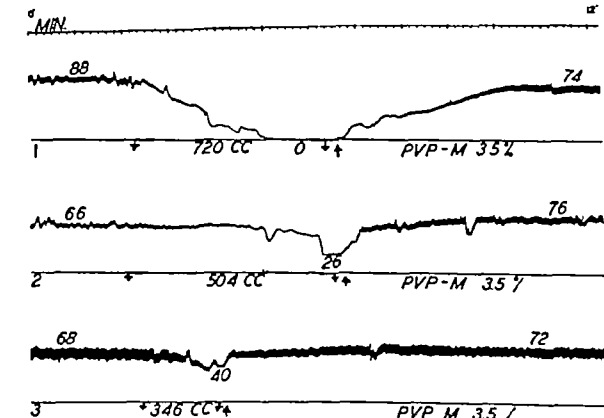


Fig 4—Effect on blood pressure of 3.5% polyvinylpyrrolidone (PVP Macrose) as a plasma expander A dog weighing 18 kg. was bled until it lost 4% of its body weight after the 720 cc of blood had been removed the hematocrit was 57% (1) Then the animal was bled for 70% of the first bleeding with the hematocrit being 25% (2) and finally for 48% of the first bleeding with the hematocrit being 14% (3) At the end of the third infusion of polyvinylpyrrolidone the blood pressure was 78 mm Hg and the hematocrit 9% The dog survived The arrows pointing down indicate the times blood was withdrawn and those pointing up the times polyvinylpyrrolidone was infused

Synthetic Polymers as Plasma Expanders—Polyvinylpyrrolidone (PVP) is a colloid produced through the chemical combination of formaldehyde and acetylene

Weese¹¹ first tried it as a plasma extender in Germany during the last war and many reports of its clinical application have been made Studies on tissue retention have also been numerous The imported polyvinylpyrrolidone material used by us was furnished by the General Aniline Corporation The molecular weight of the 3.5% solution is reported to be approximately 40,000, the viscosity was found to be 2.14 to 2.20, and the oncotic pressure, 33 to 35 cm H₂O Another polyvinylpyrrolidone preparation, PVP-Macrose (3.5%), as supplied to us by the Schenley Laboratories, has a higher molecular weight (65,000 to 70,000) than the imported product The oncotic pressure was found to be 38 to 40 cm H₂O at 25 C and the relative viscosity, 2.11 to 2.26 Both of these solutions are stable, nontoxic, and nonantigenic in mice and rabbits Mice tolerate this expander intravenously, but both the rabbit and the dog show imme-

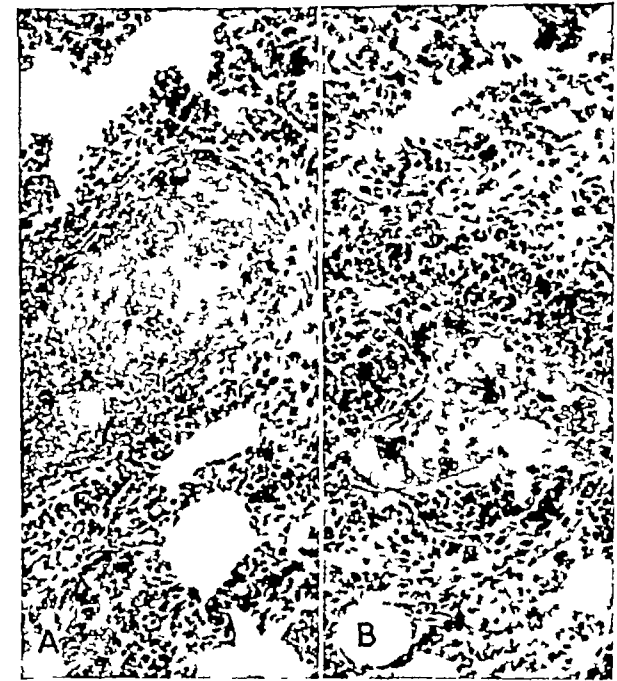


Fig 5—A section showing thrombosis in the pulmonary vein of a dog weighing 8.5 kg that had received 744 cc of a 3.5% polyvinylpyrrolidone solution (PVP Macrose) in a hemorrhage replacement experiment (medium power) B section of lung of rabbit that was killed after being given 15 cc of 3.5% PVP Macrose per kilogram of body weight every day for five injections A foreign body giant cell reaction can be seen (medium power)

diate reactions unless a preliminary injection is given 24 hours in advance

In evaluating polyvinylpyrrolidone in the dog by the survival method, one must administer a desensitizing dose (2 to 3 cc per kilogram) of polyvinylpyrrolidone at least 24 hours prior to the experiment. If this is done, untoward reactions, especially prolonged hypotension, are avoided A characteristic tracing of blood pressure in a hemorrhage-replacement study with PVP-Macrose is shown in figure 4 Although this polyvinylpyrrolidone as an expander does not create as prompt nor as marked an elevation in blood pressure as do the gelatins and dextran, survival figures are comparable In our experi-

11 Weese H Indifferente Kolloide in innerer Medizin und Chirurgie Deutsche med Wchnschr 76 757 761 1951

ence, PVP-Macrose is superior to the imported product in counteracting hemorrhagic hypotension. The imported polyvinylpyrrolidone allowed only a three of six or 50% survival rate, whereas PVP-Macrose brought about recovery in six of seven or 86% of the animals.

Pulaski states that 40 to 60% of injected polyvinylpyrrolidone is excreted unchanged by the kidneys in the first 24 hours. Definite storage can be demonstrated with polyvinylpyrrolidone tagged with I^{131} or C^{14} . In our studies with the General Aniline polyvinylpyrrolidone storage was well marked in the endothelial cells of blood vessels, the reticuloendothelial cells, the liver, and the kidney in the mouse. In the survival studies on dogs, signs of retention were encountered in tissues taken at autopsy. Figure 5A depicts a pulmonary vein showing thrombus formation in a dog weighing 8.5 kg that had received 744 cc of polyvinylpyrrolidone as blood replacement. Foreign body giant cell reactions were observed in the lungs of rabbits receiving 15 cc per kilogram every other day for five injections of PVP-Macrose, but retention in the endothelial and reticuloendothelial cells was less striking (fig 5B).

COMMENT

The available plasma expanders have been evaluated as to those characteristics that are required of an effective substitute for plasma. Molecular weight, oncotic pressure, pH, and relative viscosity data are summarized in table 1.

Gelatins, dextran, and polyvinylpyrrolidone have been studied in mice, rabbits, and dogs. Mice and rabbits have been used from the standpoint of tolerance, growth, development, and tissue changes during and after the intravenous injection of these colloids. The effectiveness of these plasma expanders in restoring the blood volume after three hemorrhages is shown by the kymographic

TABLE 1—Data Relating to the Characteristics Required of Effective Plasma Expanders

	Approximate Molecular Weight	Approximate Oncotic Pressure Cm H ₂ O at 25°C	pH Range	Relative Viscosity to H ₂ O at 20°C
Gelatin 6%	60,000-80,000	70-80	6.80-7.07	4.62-5.50
Plasmoid gelatin 5%	40,000-60,000	60-75	6.58-6.79	8.12-14.00
Oxypolygelatin 5%	10,000-48,000	80-45	4.98-6.17	1.08-2.25
Polyvinylpyrrolidone (Imported) 3.5%	40,000 (average)	33-35	0.13-7.0	2.14-2.20
PVP Macrose 3.5%	65,000-70,000	33-40	6.63-7.07	2.11-2.26
Dextran 6%	31,000-58,000	65-70	5.00-6.22	3.16-3.66

tracings of the blood pressure. The gelatins seem to give somewhat better immediate and sustained blood pressure responses as well as a higher percentage of survivals. This observation may have its explanation in the greater molecular weights, higher oncotic pressures, and increased relative viscosities of the heat-degraded gelatins.

No immediate toxic or allergic reactions were observed with these colloids in mice or rabbits. Reactions in dogs were seen only with polyvinylpyrrolidone when the recommended preliminary injections were omitted.

Survival data obtained in hemorrhage-replacement experiments on the plasma expanders studied are summarized in table 2. The hyperoncotic properties of 5 to 6% gelatin and dextran establish blood pressures following three hemorrhages that exceed the existing pressure at the time of the first massive hemorrhage. Polyvinyl-

TABLE 2—Rate of Survival in Experiments in Which Blood Was Replaced with Plasma Expanders

Plasma Expander	No that Survived	Survival Rate %
NaCl 0.85%	0 of 7	0
PVP (Imported), 3.5%	3 of 6	50
Dextran 6.0%	4 of 6	67
Oxypolygelatin 5.0%	4 of 6	67
Gelatin, 6.0%	5 of 6	83
PVP Macrose, 3.5%	6 of 7	86
Plasmoid gelatin 5.0%	8 of 8	100

pyrrolidone, with an oncotic pressure only slightly higher than plasma, is less effective in maintaining normotension, yet the survival rate is almost as good.

Tissue retention with foreign body giant cell as well as foam cell formation was observed with the various gelatins as well as the other preparations for the first time in rabbits. This is in agreement with the tissue changes previously reported in mice with pectin, dextran, and polyvinylpyrrolidone. The localization was in the lungs and liver.

CONCLUSIONS

After this second year's work on the experimental use of the plasma expanders, the data support the view that the gelatins are the most promising class of substances used for this purpose. The emergency use of dextran and polyvinylpyrrolidone in limited quantities as well as gelatin is justified in the treatment of shock states. The tissue changes observed should not interfere with function unless greatly exaggerated and multiplied.

Q Fever.—The importance of ticks as a reservoir of *C. burnetii* is shown by the large number of species found naturally infected or capable of experimental transmission, their wide spread geographical distribution, the profuse multiplication of rickettsiae within infected ticks and the failure to implicate any other group of arthropods. However, ticks have very little relation to human infection. On the other hand, the reservoir of infection represented by cows, sheep and goats is very important as a source of human infection. Infectivity resides particularly in placenta and milk. Human case-to-case infection is on record, but is rare.

The association of 'Q' fever patients with the animals from which they were presumably infected shows all degrees of closeness. Some patients were occupationally in immediate contact with animals, some resided near by. Infection was occasionally carried on clothing and very often in dust. Some times the association with animals was remote but traceable. Sometimes no association at all could be discovered. The high resistance of *C. burnetii* to heat and desiccation allows contaminated material to retain its infectivity for long periods during which it may be transported to a distance. Inhalation is the mode of entry of *C. burnetii* into man in the great majority of cases. A small but definite group appears to be due to the ingestion of raw milk. Occasional examples of other portals of entry may be found. —E. H. Derrick, The Epidemiology of "Q Fever. A Review, *The Medical Journal of Australia* Feb 21, 1953.

ORALLY ADMINISTERED HEXAMETHONIUM CHLORIDE IN HYPERTENSION

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and
Ralph V Ford, M D , Houston, Texas

Causative factors in the development of hypertension are numerous, however, one common denominator in the hypertensive state appears to be sympathetic predominance over the vasoconstrictor mechanisms responsible for maintaining arterial blood pressure. Today, there are available a number of therapeutic agents that are capable of lowering the blood pressure by "blocking" the flow of nervous impulses over the sympathetic nervous system. The majority of these drugs are impractical for routine use, because of the development of tolerance or the presence of untoward side-effects or because they are destroyed in the gastrointestinal tract and must, therefore, be given parenterally. Despite this fact, great impetus has been given to the search for more effective agents that can be administered orally and that will lower the blood pressure on a long-term basis and thus arrest the progression of the disease. Frequently, original reports on potential hypotensive drugs are enthusiastic, yet, when the drugs are distributed for general use, the results cannot be duplicated. This has been especially true when the preliminary drug evaluation has been carried out with hospitalized patients under the strict control of highly specialized investigative teams. Failure of subsequent investigators and physicians in general office practice to reduplicate the results is due largely to the fact that exact control of the patient's activities and the drug administration cannot be maintained as well on an outpatient basis. It is the purpose of this report to present results on the treatment of hypertension with orally administered hexamethonium chloride, an effective autonomic ganglionic blocking agent. Since these studies were conducted on an outpatient basis, the problems encountered will closely parallel those met in general office practice. The results are compared with those obtained with other currently available hypotensive drugs that have been used in this same clinic under similar circumstances.

METHOD AND MATERIALS

At the start, a group of 98 unselected ambulatory patients who attended the medical and cardiac clinics and 35 private patients were given hexamethonium orally, however, 13 were lost to the study because they moved from the area or because they failed to return to the clinic. All of the remaining 120 patients had blood pressures, as measured in both the supine and upright positions, of 160/100 mm Hg or greater. They appeared at the clinic at weekly or semiweekly intervals for six weeks to three months before being given the drug. Some of the more seriously ill patients were hospitalized for the induction of drug therapy and were not followed for so long a control period. There were 40 men and 80 women, whose ages ranged from 26 to 71 years. All were subjected to the usual laboratory tests for evaluating patients with hypertension. These included electrocardiogram, chest roentgenogram, eye ground examination, routine

urinalysis, urine concentration, phenolsulfonphthalein excretion, urea clearance, and blood urea nitrogen determinations. Following the control periods, during which the patients received only supportive therapy and placebo medication, therapy with the chloride salt of hexamethonium was started, and the patients were followed at weekly or semiweekly intervals as outpatients. The severer the hypertension, the more frequently the patients were seen. When special problems arose, the patients involved were seen in the clinic every day or were hospitalized. During the initial studies some patients were treated with the bromide rather than the chloride salt, but an analysis of the results indicated that there was no difference in the hypotensive response.¹ Because of the potentiality of brominism,² the use of the bromide salt was discontinued. The control as well as the follow-up blood pressure determinations were taken in both the supine and upright positions at the time of each visit of the patient to the clinic. This is necessary for adequate evaluation, because the hypotensive response is predominantly orthostatic, which is also true with the use of other ganglionic and adrenergic blocking drugs. The blood pressure was determined by the investigator on each clinic visit as well as by the clinic nurse at the time the patient registered in the clinic and several hours later, just prior to the patient's return home. These multiple observations over a three to four hour period offered an additional opportunity for evaluating variations in blood pressure between doses of the drug. The control supine and upright blood pressure for each patient in the present report was determined by taking the average of all blood pressure observations during the control period in each position. The post-drug blood pressure is the average of the values obtained after the titration period (during which the blood pressure and drug dosage were being stabilized). In addition to the observations on blood pressure, clinical manifestations of excessive hypotension, such as dizziness on standing and excessive weakness during certain parts of the day, were taken into account while adjusting the dose schedule. The initial dose of hexamethonium was usually 250 mg. four times a day, given orally with each meal and at bedtime. Taking the drug with meals was found advisable in most patients, because it decreased the variation in gastrointestinal

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The hexamethonium chloride used in this study was supplied by Chilcott Laboratories, Division of the Maltine Company, Morris Plains, N. J. as Methium, Burroughs Wellcome & Company Inc., Tuckahoe, N. Y. as Hexameton, and Ciba Pharmaceutical Products Inc., Summit, N. J. as Esomid.

1. Johnson I, Moyer J H, Mills L C, and Miller S I. Treatment of Hypertension. Results with Hexamethonium Salts Administered Orally, *Texas J Med* 48: 331, 1952.

2. Holt, M C, and Litchfield J W. Bromism as a Complication of Letters to the Editor. *Lancet* 1: 347, 1951.

absorption of the drug. Also, mealtime and bedtime were good reminders to the patients to take their medicine. Although a more constant blood level of hexamethonium no doubt can be maintained if the drug is administered in smaller doses every three to four hours around the clock, when this technique was followed, most of the patients objected to the routine and were less dependable in taking their medicine than when the drug was given as outlined above. Because of the psychogenic aspects of hypertension and because too much of the patient's attention has already been focused on the disease, such considerations as dose schedule become of utmost importance if therapy is to remain practical over a long period. The dose of hexamethonium was gradually increased in a stepwise fashion until an adequate blood pressure response was obtained or until side-reactions forced discontinuance of use of the drug. One week was allowed between changes in the dose schedule, unless the patient was in the hospital during the titration period. An example of the titration method for establishing the dose schedule is as follows:

	7 A.M.	12 Noon	5 P.M.	10 P.M.
1st week	250 mg	250 mg	250 mg	250 mg
2nd week	500 mg	250 mg	250 mg	500 mg
3rd week	500 mg	500 mg	500 mg	500 mg
4th week	750 mg	500 mg	500 mg	750 mg

In raising the dose of hexamethonium, the morning dose and that taken before retiring were increased first, since the interval between these two (in which the patient did not receive medication) was greater than at any other time during the 24 hour period. This also helped avoidance of excessive increases in blood concentrations of hexamethonium during the afternoon and early evening. Several patients who showed too much variation in blood pressure between doses were given the drug in smaller amounts more frequently.

RESULTS

Thirteen of the original 133 patients were lost from the study for one reason or another. This does not include any of the patients who were dropped because of prohibitive side-reactions or death. For purposes of analysis, the remaining 120 patients on whom adequate follow-up could be maintained have been divided into three groups, according to the diastolic blood pressure. Group 1 consists of 29 patients with less severe hypertension, in whom the average diastolic pressure during the control period was more than 100 but less than 120 mm Hg, group 2 consists of 58 patients in whom the control diastolic pressure was more than 120 but less than 140 mm Hg, and group 3 includes 33 patients with the severest hypertension, in whom the diastolic blood pressure was more than 140 mm Hg. The patients who failed to respond to treatment were predominantly Negro women. This latter observation probably reflects inability to cooperate with the therapist rather than any variation in pharmacological response to the drug.

Some of the pertinent clinical and vital data on these patients are summarized in table 1. About one-third of the patients had evidence of renal impairment prior to therapy, as indicated in the renal function studies employed. Of the patients in group 1, only 4 of 29 showed evidence of renal involvement, whereas in group 3

(diastolic pressure above 140 mm Hg) over half showed evidence of impaired renal function. This did not indicate that renal disease preceded the hypertension. More likely the reverse was true in most instances, since patients with frank evidence of acute or chronic nephritis were not included in the study. The blood urea nitrogen level was elevated in 9 instances, and numerous red cells were found in the urine of 22 patients (table 2). Most of these patients fell into group 3, additional evidence of the severity of the disease in this group. Eight patients in group 3 and 12 in group 2 were classified as having malignant hypertension. About one-third of the patients had evidence of congestive heart failure. This had already been treated prior to hexamethonium therapy in most instances. In a few of the patients with less severe failure, no cardiac therapy was inaugurated in order to evaluate the effect of blood pressure reduction alone on the clinical course of heart failure. Thirty-one patients complained of precordial pain prior to therapy. This was typically anginal in type in 15. Three of these patients had previously had myocardial infarction. Three additional patients who had had coronary occlusions had no residual anginal pain. The electrocardiograms during the control periods were interpreted as being abnormal in 92 patients included in the present study. In 48 there was evidence only of left ventricular hypertrophy, whereas in the remaining 44 there was evidence of frank myocardial damage. Cerebrovascular disease was present in 22 patients, as evidenced by previous cerebral arterial occlusions or hemorrhages or by the presence of encephalopathic manifestations.

The blood pressure responses of the three groups of patients are presented in table 3. The period of follow-up after receiving hexamethonium varies from 3 to 18 months. For purposes of evaluating drug tolerance, hypotensive response, and clinical improvement, the patients in each group have been subdivided according to the follow-up period as of the present time, i.e., 3 to 6 months, 6 to 12 months, or 1 year or longer. Table 3 shows the mean blood pressure values for all patients in each group and subgroup who showed a reduction in mean blood pressure of 20 mm Hg or more as well as the mean values for the unresponsive patients in each group. There was no evidence to indicate that increasing amounts of hexamethonium were required with time to maintain the hypotensive response, that is, that drug tolerance occurred, since the patients who were treated for one year or more did not require more of the drug after this period than patients who had received it for only three months. In looking over individual patients' records, it was observed that a number of patients required more drug per day after one year than they did initially, but just as many required less. There was no obvious answer to account for the variability of drug requirements from time to time, however, it was noted that during periods of increased activity or hot weather the drug requirement decreased. This may represent decreased excretion due to depressed renal function at these times. On the other hand, periods of increased nervous tension usually increased the amount of drug necessary to control the blood pressure. If the blood pressure was reduced excessively, the amount of drug required to maintain the hypotensive response was less than if the

blood pressure was allowed to remain at mildly elevated levels, probably owing to changes in the glomerular filtration rate and variations in the drug excretion rate. Patients in all three groups who were considered unresponsive to the drug received as large as or larger average daily amounts than the responsive patients.

The reduction in blood pressure was greater in the upright position than in the supine. Percentagewise, there

standing of each patient's problems and idiosyncrasies by both the physician and the patient himself over a longer period.

The initial side-effects associated with hexamethonium therapy were numerous, but in very few instances were they prohibitive or serious enough to cause concern. This was not the case if the dose of the drug was built up too rapidly and the blood pressure was reduced exces-

TABLE 1—Clinical Data and Incidence of Complications Associated with or Due to Hypertensive Vascular Disease Prior to Therapy

	Renal Disease		Heart Failure		ECG * Changes		Cerebro-vascular Complications		Previous Myocardial Infarction		Precordial Pain		Sex		Race		Average Age
	No	% †	No	%	No	%	No	%	No	%	No	%	Male	Female	Negro	White	
Group 1 (29 patients)																	
Responsive, 25 patients	2	8	10	40	10	40	0	0	2	8	7	28	5	20	12	13	51
Unresponsive 4 patients	2	50	2	50	1	25	2	50	2	50	2	50		4		4	55
Group 2 (58 patients)																	
Responsive 49 patients	18	37	18	37	89	80	11	22	2	4	14	29	21	28	20	29	48
Unresponsive 9 patients	3	33	5	56	9	100	5	50			5	56	3	6	8	4	51
Group 3 (83 patients)																	
Responsive 29 patients	17	59	8	28	29	100	2	7			11	38	11	18	8	21	46
Unresponsive 4 patients	4	100	4	100	4	100	2	50			2	50		4	3	1	59
Total																	
Responsive 108 patients	37	36	36	36	78	76	13	13	4	4	32	31	37	66	40	63	48
Unresponsive 17 patients	9	53	11	65	14	82	9	53	2	12	9	53	3	14	11	6	54

* Consistent with changes ranging from left ventricular hypertrophy to severe myocardial functional derangement
† Percentages indicate percentage of total responsive or unresponsive patients in each group with each complication

TABLE 2—Incidence of Side Reactions to Hexamethonium and Hypertensive Symptoms and Signs Relieved or Improved by Its Use

Side-Reactions Due to Hexamethonium									Symptoms or Signs Improved by Hexamethonium				
	Duration of Treatment								Symptom or Sign	Total No of Patients Com- plaining	Patients Improved		
	Initial		3 Mo		6 Mo		1 Yr				No	%	
	No	%	No	%	No	%	No	%					
Total No of Patients	120	100	103	100	60	100	31	100					
Side-Reaction													
Constipation	92	77	62	60	20	29	8	24	Headache †	33	30	79	
Anorexia	55	46	26	26	13	19	3	9	Precordial pain	31‡	22	71	
Weight loss			32	31	27	39	8	24	Angina pectoris	15	11	73	
Blurred vision	78	65	22	21	8	12	4	12	Eye ground changes ¶	53	36¶	68¶	
Fatigue	56	47	38	37	26	38	10	29	Albuminuria	26	16	63	
Dry mouth	88	73	20	25	10	14	5	15	Hematuria ‡	22	12	55	
Nausea and vomiting	31	26	12	12	3	4	1	3	Nervous tension	24	18	75	
Diarrhea	14	12	8	8	14	20	6	18	Heart failure	36	26	72	
Dizziness *	61	51	45	44	31	45	11	32	Abnormal ECG strain	48	32	67	
Impotence †	20	50	20	68	10	45	6	50	Myocardial damage	44	8	18	
Precordial pain	1	1											
Abdominal cramps	24	20	12	12	6	9	4	12					
Syncope	12	10	6	6	4	6	3	9					
Urinary retention	3	3											

* Fluctuated in the upright position at least twice a week
† Occurred only in males of whom there were 40 initially, 37 at 3 months, 22 at 6 months, and 12 at 1 year
‡ Includes headaches following the onset of hypertension not those unrelated to elevated blood pressure
§ Includes 15 patients with typical angina pectoris
¶ Includes only those with grade 3+ or 4+ changes according to the Keith Wagener classification
§ Improved to next grade or better
¶ Many red cells on microscopic urine examination associated with exacerbation of hypertension. All patients showing improvement of this manifestation had previously had a significant reduction in blood pressure.

was often more of a decrease in systolic than in diastolic blood pressure while standing. In the supine position, the percentile reduction in systolic and diastolic pressure was about equal. Since the drug blocks off the sympathetic innervation to the heart (fig 1), reflex tachycardia usually did not accompany the reduction in blood pressure. When compared with the control observations, the average blood pressure for patients with severer hypertension (group 3) was lower in those who had been followed for six months to a year than it was in those who had been followed for only three months. This probably reflects greater stability of the blood pressure and better under-

standing by overshooting the point at which the dose of the drug was optimal. When this occurred, syncope on standing was almost always seen. At the same time, the patient complained of weakness, dryness of the mouth, blurred vision, and difficulty in defecation. All these improved as

* One of the authors (J. H. M.) has had occasion to observe two patients elsewhere treated by a more rapid titration method under hospital conditions in whom segmental paralytic ileus developed. In one of these the ileus was relieved within 18 hours after use of the drug was stopped. The second patient was in severe uremia (and had been prior to therapy also with a blood urea nitrogen level of 150 mg per 100 cc.) and had associated lower abdominal pain. The attending physician and a surgical consultant, being aware of this complication, performed a laparotomy and the patient died within four days from progressive uremia.

the drug was excreted and the blood pressure rose to normotensive or mildly hypertensive levels. When excessive reduction in blood pressure caused concern, any of the peripherally acting vasopressor agents were effective as antidotes for raising the blood pressure, since hexamethonium has no peripheral blocking action. Excessive hypotension and constipation were the most difficult side-effects to handle effectively and still control the hypertension. Cholinergic drugs were of little value for the correction of constipation. Cathartics, in the form of cascara sagrada, liquid petrolatum (mineral oil), and magnesium hydroxide (milk of magnesia), were adequate and were used freely whenever indicated. Intermittent nausea, occasional vomiting, and abdominal cramps were seen frequently, but these were usually observed during the initial period of therapy. Most of the side-reactions decreased as treatment continued. There was one exception. Diarrhea was seen more frequently in patients who

blood pressure was adjusted to strict normotensive levels. The difference between the supine and upright blood pressure reduction in many patients tended to decrease as therapy was continued, but some orthostatic effect was present even in those who received the drug for a year or more (table 2). Urinary retention occurred in three patients, but in each instance the dosage had been increased rapidly. Hexamethonium therapy was abandoned in two of the three patients, after which this symptom was completely relieved. The retention subsided spontaneously in the third patient, despite continued drug administration. Many of the men experienced some degree of impotence but no alteration in sexual drive. Attempts to occasionally relieve this symptom by omitting the night dose proved ineffective unless the blood pressure also escaped from control. Therefore, in most patients with very severe hypertension, it was thought inadvisable to overcome this complaint or to bring the

TABLE 3—Blood Pressure Response to Orally Administered Hexamethonium

Follow up Period *	No. of Patients	Average Dose †	Blood Pressure Response					
			Upright			Supine		
			Control	During Therapy	% of Control	Control	During Therapy	% of Control
Group 1 (29 patients)								
Responsive ‡								
3-6 mo	7	2,338	204/114	141/90	69/79	213/116	171/96	80/84
6-12 mo	9	3,375	200/115	153/99	77/80	203/119	177/103	87/87
1 yr or more	9	3,107	196/114	130/91	71/80	190/107	171/101	90/84
Total	25		200/114	145/94	73/82	203/115	173/101	85/83
Unresponsive	4	3,000	181/113	161/103	89/91	184/115	182/110	99/96
Group 2 (58 patients)								
Responsive ‡								
3-6 mo	18	1,875	241/129	141/92	59/71	214/130	172/108	80/83
6-12 mo	13	3,500	208/127	153/100	74/79	213/127	174/107	82/84
1 yr or more	18	2,938	198/130	129/94	65/65	205/129	171/107	83/83
Total	49		216/129	140/91	65/71	210/129	172/107	82/83
Unresponsive	9	4,250	218/131	206/129	94/98	221/133	212/119	96/97
Group 3 (33 patients)								
Responsive ‡								
3-6 mo	7	3,542	223/158	170/120	76/82	228/165	197/134	86/81
6-12 mo	18	3,000	221/147	164/107	74/73	225/145	180/107	75/74
1 yr or more	0	3,125	245/154	148/98	61/64	248/160	179/109	72/70
Total	23		223/151	164/109	72/72	233/163	179/114	77/75
Unresponsive	4	4,250	230/153	224/152	97/96	238/156	211/134	91/89

* After blood pressure reduction with hexamethonium

† Milligrams of hexamethonium per 24 hours given in divided doses

‡ Mean blood pressure decrease of 20 mm. Hg or more

§ Mean for total number of patients in group who responded not an average of the figures in each column

had been receiving the drug for prolonged periods. Even after the patients had been on the drug for long periods, if they obtained an increased response to the drug, owing to increased intake, increased absorption, or decreased excretion, the previous symptoms returned as the blood pressure dropped. This was especially true of fatigue, blurred vision, and constipation. Orthostatic dizziness was experienced at some time by the majority of the patients. This suggests excessive reduction in blood pressure. If it occurs at the same time each day, it is an indication for reducing the amount of drug being ingested in the preceding dose. A history of recurrent orthostatic dizziness between clinic visits was of considerable value to the physician in arriving at a correct dose schedule. Owing to some day to day variation in the blood pressure of most patients, an attempt was made to regulate the upright blood pressure at levels slightly above normal (150/90 to 100) to avoid periods of excessive orthostatic hypotension and syncope. Persistent dizziness when standing occurred almost invariably if the supine

possibility to the patient's attention. On withdrawal of hexamethonium, the symptom was always relieved.

The most outstanding symptomatic improvements were the relief of headache and angina pectoris. This occurred in three-fourths of the patients with these complaints. Precordial pain associated with the hypertension but not typically anginal in type was also relieved as the blood pressure was reduced. Eyeground examination showed definite objective improvement in numerous instances. This was in the form of reduction of hemorrhages and exudates, which was usually associated with improved vision. Of 53 patients with grades 3+ and 4+ (Keith-Wagener classification) changes due to hypertensive vascular disease, improvement to the next grade or better was noted in 68%. All but two of the patients showing improvement also obtained a significant reduction in blood pressure. In the two exceptions, spontaneous improvement occurred. Although an increase in phenolsulfonphthalein excretion was not observed in most of the patients, progressive impairment also did not

occur as long as the blood pressure could be controlled. The presence of albumin and red cells in the urine, which was observed during the control studies in many of the more severely hypertensive patients, was diminished. This was especially true in the case of intermittent hematuria that accompanied exacerbations in the hypertension. Of the nine patients with azotemia, three showed a good blood pressure response, but the blood urea nitrogen level increased during maximum hypotensive therapy. This was reversed in one of the three when the blood pressure was allowed to increase to a moderately hypertensive level but one that was still considerably below the control value. Therapy was discontinued in the second. The third patient had malignant hypertension and broke out of control as soon as the dose of hexamethonium was decreased. The blood urea nitrogen level was elevated but returned to normal as the blood pressure

responded to treatment but broke out of control, rapidly progressed downhill, and died. Therefore, they are included in the unresponsive group in the present report. Four patients who died never obtained a reduction in blood pressure. Three of these were also given combined hexamethonium and hydralazine (Apresoline) therapy, according to the method of Schroeder, without a response being obtained. The eighth death was due to a cerebral hemorrhage that followed abandonment of therapy on the patient's own volition and against medical advice. None of the patients who obtained and maintained a good reduction in blood pressure with this therapy have died.

Forty-four patients who have been treated with orally administered hexamethonium and who have been followed for one year or more are available for long-term comparison with other patients treated in the same clinic.

TABLE 4—Comparison of Blood Pressure Response to Hexamethonium with That to Other Hypotensive Drugs Used in the Same Clinic Under Similar Circumstances

	No of Patients Treated	Percentage of Patients Responding					Daily Dose Mg	Follow Up After 1 Yr		
		Normotension*	Decrease in M.B.P.† 40 Mm or More	Decrease in M.B.P.‡ >30 Mm but Less Than 40 Mm	Decrease in M.B.P.§ >20 Mm but Less Than 30 Mm	Decrease in M.B.P. 20 Mm or More		No of Patients Followed	Patients Responding‡	
									No	%
Dibenzylamine ‡	82	44	47	9	9	66	155			
Phentolamine ‡	24	0	0	8	8	17	675	24	0	0
Anatensol ‡	31	3	3	10	6	19	7.1	31	2	6
Verloid ‡	30	7	20	7	23	50	18.1	28	6	21
Hydralazine ‡	62	10	10	8	15	33	641	62	4	8
Hexamethonium ‡¶	120									
Group 1	29	31	7	33	33	83	3 013	10	9	70
Group 2	58	38	55	31		84	2 938	23	18	78
Group 3	33	20	67	6	13	88	3 169	11	9	82
Mean for all three groups		30	47	20	18	86	Total	44	36	82 %

* Maintained below 150 mm. Hg systolic and 100 mm. Hg diastolic (upright).

† M.B.P. = mean blood pressure.

‡ Number of patients who continued to show a decrease in mean blood pressure of 20 mm. Hg or more.

§ Blood pressure response in upright position.

|| Extract of veratrum viride.

¶ Administered over periods of 3 to 18 months.

§ Four discontinued therapy on their own volition after this length of time and for four others another hypotensive agent (hydralazine) was added to the therapy.

decreased in four patients in the responsive group. Two of the nine patients had malignant hypertension and showed no blood pressure response to the drug. Both have since died as a direct result of their hypertension. The symptoms and signs of heart failure improved as the blood pressure was reduced in about two-thirds of the patients. This occurred in patients who had previously received digitalis and diuretics as well as in the patients who had not received specific therapy for heart failure. Improvement of the cardiac status was verified by observation of a decrease in heart size seen on roentgenograms in numerous instances. In general, the electrocardiograms that showed a left ventricular strain pattern improved, however, when evidence of frank myocardial damage existed, little change was observed. Patients with malignant hypertension and simultaneous cardiac failure and severe renal disease were especially resistant to hypotensive therapy. During the course of this study, eight patients died. Three had malignant hypertension associated with renal disease and heart failure. They originally

with other hypotensive drugs. Eight of the 44 failed to obtain a good initial therapeutic response and are included in the unresponsive group. Four others have discontinued use of hexamethonium on their own volition after one year, although they had initially obtained and had continued to have a satisfactory reduction in blood pressure (table 4). In four other patients, hydralazine was added to the therapeutic program, despite an initial and maintained reduction in blood pressure for one year or more when hexamethonium had been used alone. This was done either in an effort to obtain a greater reduction in blood pressure with less side-effects or because the blood pressure seemed excessively labile when hexamethonium was used alone. Therefore, hexamethonium alone has been found to be a satisfactory therapeutic agent for the treatment of hypertension in 64% of the patients who have been treated for one year or more. There is no indication at this time that the drug will not continue to be effective indefinitely in this group of responsive patients.

PHARMACOLOGICAL ACTION

Therapeutic agents that are capable of lowering the blood pressure through their action on the nervous system can be divided essentially into three groups, according to their primary site of action (1) centrally acting drugs (on the brain), which depress the central outflow of vasoconstrictor impulses (hydralazine and Veratrum viride extracts), (2) ganglionic blocking drugs, which block the transmission of impulses through the autonomic ganglions (hexamethonium), and (3) peripheral blocking agents, which block the transmission of impulses from the sympathetic nervous system to the end organ (phentolamine [Regitine] and Dibenzylamine [N-phenoxypipropyl-N-benzyl- β -chloroethylamine hydrochloride]).

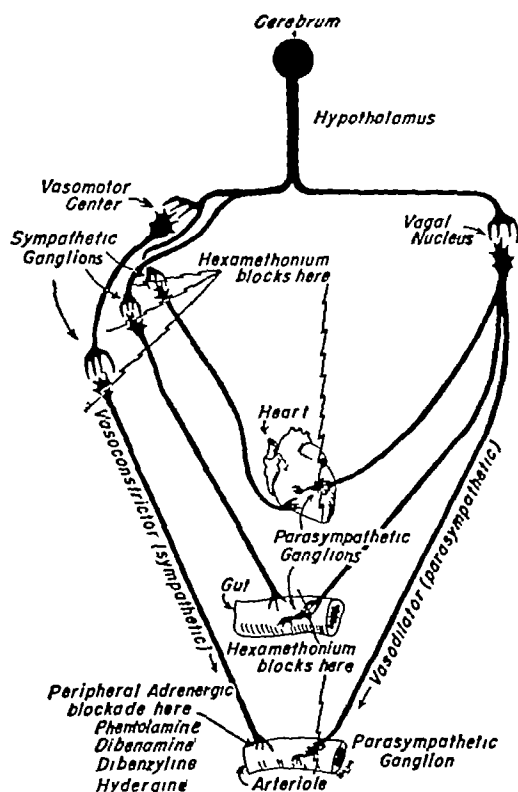


Fig 1—Representation of the ganglionic blocking action of hexamethonium. The transmission of vasoconstrictor and cardiac accelerator impulses over the sympathetic nerves to the heart and blood vessels is interrupted following administration of hexamethonium causing a reduction in blood pressure without a significant change in pulse rate (Dibenzylamine is N N-dibenzyl β -chloroethylamine).

side)] Certain drugs, such as Hydergine (methanesulfonates of dihydrogenated ergotoxine alkaloids), affect more than one focus by acting both centrally and peripherally. Hexamethonium falls into the ganglionic-blocking group of drugs (fig 1). It, like tetraethyl-

ammonium, is exceptional by comparison to other known ganglionic paralyzing agents in that it does not stimulate the ganglions prior to paralysis. It differs from tetraethyl ammonium in that the paralysis lasts longer and the hypotensive effect is much less variable and more prolonged. Hexamethonium belongs to the bismethonium compounds, which are composed of two ammonium radicals in which the hydrogen ions are replaced by methyl and halogen groups and which are united by a chain of a varying number of methyl groups. The compound so formed is named according to the number of methyl groups in the chain between the two nitrogen atoms. Thus, a compound with 10 methyl groups in the chain is called decamethonium (C_{10}) and one with 6 methyl groups, hexamethonium (C_6). The C_{10} derivatives have been found to have a curare-like action. When hexamethonium produces ganglionic blockade, it blocks the parasympathetic as well as the sympathetic ganglions. Most of the side-effects associated with the reduction in blood pressure can be attributed to the curare-like effect (weakness and fatigue), parasympathetic ganglionic blockade (constipation, urinary retention, dry mouth, and anorexia), or excessive hypotension (dizziness and syncope), which is predominantly orthostatic. Since the drug blocks the cardioaccelerator ganglions to the heart, reflex tachycardia after blood pressure reduction does not occur with hexamethonium as it does following comparable reduction by adrenergic blocking drugs and other means.

When blood pressure is reduced, the cerebral vessels dilate and cerebral blood flow and cerebral metabolism are maintained³, however, if the pressure is reduced excessively, cerebral blood flow decreases, and disturbances in cerebral function follow^{4b}. This is more likely to occur in the upright position (fig 2), especially if not accompanied by muscular activity, since reflexes responsible for readjusting vasoconstriction to changes in position are also blocked by hexamethonium. Therefore, the blood pressure should always be measured in both the supine and upright positions in evaluation of ganglionic blocking drug therapy. If cerebral ischemia is to be avoided while the patient is standing, the blood pressure should be adjusted with the patient in the upright position. Note in figure 2 that reduction in blood pressure in the supine position had no significant effect on cerebral blood flow or cerebral oxygen uptake, because of the reduction in cerebrovascular resistance, a result of cerebral arterial dilatation. In the upright position, there was a slight reduction in cerebral blood flow. Further reduction in systemic blood pressure was apparently minimized by active motion of the extremities, thus maintaining adequate venous return of blood to the heart. In the 45 degree head-up position with passive tilting there was an additional sharp reduction in systemic blood pressure, and cerebral blood flow was reduced. The patient complained of dizziness just prior to the termination of this aspect of the study. These observations have therapeutic significance with regard to the effect of blood pressure reduction on cerebrovascular hemodynamics. Passive head-up tilt should be undertaken with extreme caution in these patients.

3 (a) Crumpton C W and others: Cerebral Circulatory and Metabolic Changes Following Intramuscular Hexamethonium (C-6) Bromide in Subjects with Severe Hypertensive Retinopathy. *Federation Proc* 11: 335, 1952. (b) Moyer J H, Miller S I, and Snyder H B. Unpublished data.

4 Moyer J H and Mills L C: Hexamethonium—Its Effect on Glomerular Filtration Rate, Maximal Tubular Function (TmPAH) and Renal Excretion of Electrolytes. *J Clin Investigation* 32: 172, 1953.

5 (a) Moyer and Mills.⁴ (b) Freis E. Personal communication to the authors. (c) Kelley R T, Freis E D, and Higgins T F: Effects of Hexamethonium on Certain Manifestations of Congestive Heart Failure. *Circulation* 7: 169, 1953.

Following acute blood pressure reduction with hexamethonium (studies in supine position) there is an initial depression of renal function.⁴ Glomerular filtration gradually returns to normal, however, despite a maintained reduction in blood pressure, provided⁶ the reduction is not excessive. The patient whose course is shown in figure 3 was admitted to the hospital in a semicomatose state associated with a hypertensive crisis. The blood pressure was reduced acutely with parenterally administered hexamethonium, and renal functions (glomerular filtration rate and renal plasma flow) were depressed as the blood pressure decreased. Despite maintenance of the reduction in blood pressure, renal function returned to normal. The patient was later given the drug orally, and, although blood pressure was maintained at 130 mm Hg systolic and 100 mm Hg diastolic, renal function was not depressed in comparison with the pre-treatment levels.

Renal blood flow and the glomerular filtration rate are depressed following exercise in untreated patients

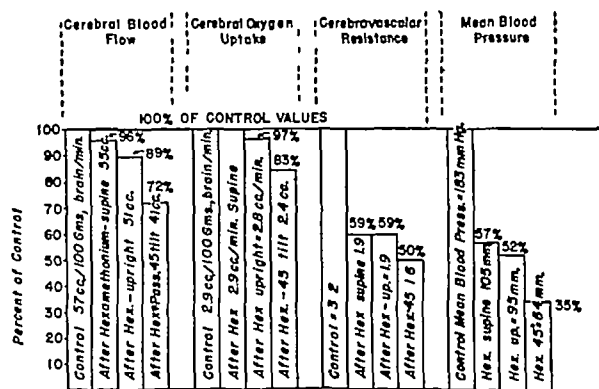


Fig. 2.—Cerebral hemodynamic response to blood pressure reduction with hexamethonium in a patient with malignant hypertension. The effect of reduction in blood pressure in the supine position is contrasted with that in the upright position accompanied by active motion of the legs and that in a 45 degree head-up position with passive tilting.

This also occurs in patients who have been treated with hexamethonium.⁶ Patients with renal damage respond to blood pressure reduction qualitatively, similarly to patients with normal kidneys, but the readjustment is slower.⁴ A few patients fail to completely readjust⁶ to a lowered blood pressure. If readjustment is incomplete, there is little need for concern if renal function is relatively normal, however, if renal function is severely impaired, even small reductions in glomerular filtration may seriously decompensate the excretory capacity of the kidney. Therefore, in the presence of impaired renal function, the therapist must be alert to this possibility. When the blood pressure is reduced excessively, the glomerular filtration rate is depressed, and anuria supervenes, even in the presence of relatively normal kidneys. When this occurs, arterenol infusion will quickly reverse the process, with improvement in glomerular filtration. The patient whose course is shown in figure 4 had a normal glomerular filtration rate during the control period, however, because of excessive reduction in blood pressure with orally administered hexamethonium,

glomerular filtration decreased sharply, and anuria supervened. When this patient's blood pressure was increased by means of arterenol infusion, the glomerular filtration rate and urinary output returned toward the control levels. After 12 hours, when arterenol infusion was dis-

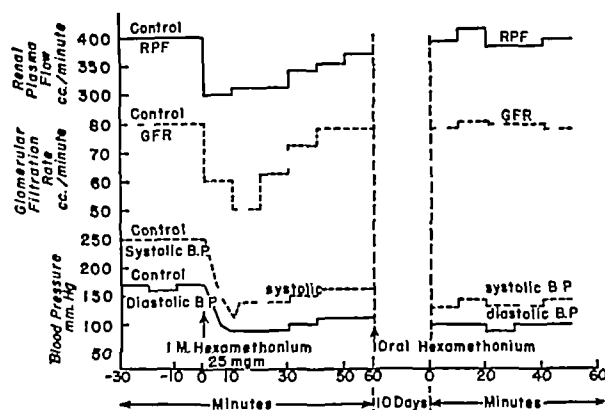


Fig. 3—Acute response of blood pressure and renal function to intramuscularly administered hexamethonium and their status 10 days later during maintenance therapy with orally administered hexamethonium.

continued, the blood pressure remained elevated, and glomerular filtration approximated the control observations.

CLINICAL CONSIDERATIONS

The beneficial effects of blood pressure reduction can be argued pro and con. In the hypertensive state there are three vascular beds that are especially likely to cause complications. These are the cerebral vessels, the heart and coronary vessels, and the renal vasculature. The present studies confirm many previous observations that the vascular stress on the heart and cerebral vessels in patients with hypertension is relieved by reducing the

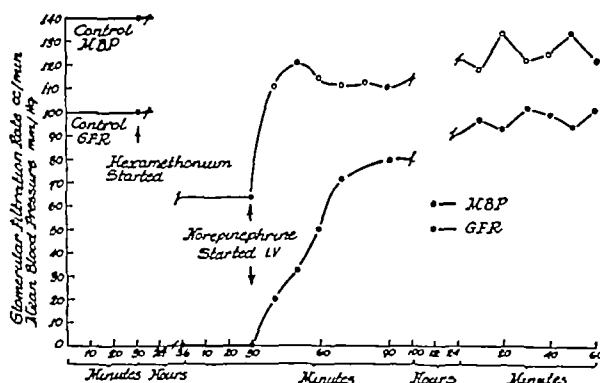


Fig. 4—Effect of excessive hypotension due to hexamethonium on the glomerular filtration rate in a patient with a normal control rate.

blood pressure. Hypertensive headaches were improved in about four out of five patients with this complaint. Relief was obtained without altering cerebral blood flow. As the blood pressure is reduced, the cerebral vessels dilate (fig 2), and, thus, cerebral blood flow is main-

6 Ford R. V. Moyer J. H. and Spurr C. L. Hexamethonium in the Chronic Treatment of Hypertension—Its Effect on Renal Hemodynamics and the Renal Excretion of Water and Electrolytes. *J Clin Investigation* to be published.

tained, even during treatment for severe and malignant hypertension.^{7b} If the pressure is reduced excessively, complications, such as cerebral ischemia with thrombosis and paralytic phenomena, may be anticipated. This was not observed, although one older patient experienced transient weakness at a time that her blood pressure had declined to 80 mm Hg systolic and 50 mm Hg diastolic in the upright position. As soon as the patient reclined, immediate and complete recovery followed. The manifestations in this instance were probably those of ischemia rather than thrombosis. Apparently, the cerebrovascular dilatation associated with the reduction in blood pressure tends to prevent the formation of thrombi. Certainly, reducing the blood pressure decreases the possibility of occurrence of hemorrhages and small vessel bleeding. This is well demonstrated in the improvement and resolution of retinal hemorrhages in numerous instances as the blood pressure was reduced.

The decrease in precordial pain and improvement of the anginal syndrome in many instances suggests that the ratio of coronary blood flow to oxygen and metabolite demand is improved. In only one instance was coronary pain precipitated by reduction in blood pressure, whereas definite improvement in angina was noted in three-fourths of the patients who had this complication. Improvement was also noted in patients who experienced precordial pain that was not typically anginal in type. Apparently the reduction in work load on the heart compensates for any decrease in coronary flow associated with the drop in arterial blood pressure. It is also possible that ganglionic blockade of either the sympathetic or parasympathetic nerves to the heart inhibits vasoconstrictor impulses traveling to the coronary vessels. In addition, the drug may exert some direct action or it may block afferent sensory nerves traveling over the sympathetics. When the blood pressure was reduced in patients with associated heart failure, cardiac output^{8b} increased, and heart failure improved. This observation suggests that the cardiac efficiency is improved as the work load is reduced.

It can be concluded from the above observations that if cerebral pathological changes or cardiac failure exist either alone or in combination and if they are secondary to severe and prolonged hypertension, attempts to reduce the blood pressure should be undertaken. This is particularly true if renal function is not impaired. Contrariwise, if impairment of renal function predominates, caution must be exercised when reducing the blood pressure, since further impairment of renal excretory capacity may occur. Although the damaged kidney responds to a reduction in blood pressure by vasodilatation in a relatively normal fashion, this occurs more slowly⁷ than in the normal kidney and is occasionally incomplete.

Failure of complete renal hemodynamic readjustment is more likely to occur if the blood pressure is reduced to absolute normotensive or hypotensive levels. In the presence of renal damage, glomerular filtration is critical, and small, absolute changes may throw the patient into frank and progressive renal failure. With normal renal function, the renal reserve is adequate to compensate for minor changes, however, even in this case, if blood pressure reduction is excessive, glomerular filtration is greatly depressed, and anuria supervenes (fig 4). These observations do not indicate that blood pressure reduction is not feasible in the presence of impaired renal function. They do indicate that, when blood pressure reduction is undertaken, it must be done with extreme caution and with constant evaluation of renal excretory function. Any tendency toward an increase in the blood urea nitrogen level is a definite contraindication to further reduction in blood pressure. When this occurs, the blood pressure must be allowed to return to levels at which renal excretory capacity is not further impaired. Blood pressure reduction with hexamethonium should not be undertaken under circumstances in which determinations of the blood urea nitrogen level are not feasible.

COMPARISON WITH OTHER DRUGS

When hexamethonium is compared with some of the other drugs that currently are being used under similar circumstances, the superiority of the former as a hypotensive agent is obvious (table 4), for example, if semi-purified *Veratrum viride* preparations, such as Verloid and Anatensol,⁸ are administered by the oral route, the blood pressure can be reduced significantly for prolonged periods in only a small number of patients. When enough drug is given to consistently reduce the pressure, nausea and vomiting will be experienced by almost all patients. This limits the usefulness of these compounds, and follow-up after one year indicates that 20% of the patients, or less, continue to obtain any reduction in blood pressure. Only in exceptional patients (3 to 7%) can the blood pressure be reduced to levels approaching normotensive values.

The effectiveness of hydralazine (Apresoline) may be limited when given alone, either orally or parenterally, owing to the tachycardia and increased cardiac output that accompany the reduction in blood pressure.⁹ This is a serious consideration in the presence of coronary artery disease, in which myocardial ischemia may develop as a result of the cardiac stimulant effect on a heart in which the coronary arteries are unable to deliver an adequate supply of blood to the myocardium. When the tachycardia is marked, the electrocardiogram shows T wave changes consistent with coronary insufficiency, presumably on the basis of the increased cardiac work.¹⁰ In studies on the isolated heart-lung preparation, there is some evidence that hydralazine may actually increase the blood flow through the coronary vessels. If this occurs in the intact animal it is apparently not adequate to completely compensate for the increased work load on the heart caused by the tachycardia. When the sympatho-

⁷ Moyer and Mills.⁴ Ford and others.⁸

⁸ Mills L. C. and Moyer J. H. The Treatment of Hypertension with Orally and Parenterally Administered Purified Extracts of *Veratrum Viride* and a Comparison with Ganglionic (Hexamethonium) and Adrenergic Blocking Agents. *A M A Arch Int Med* to be published.

⁹ (a) Freis.¹⁰ (b) Moyer J. H., Handley C. A. and Huggins R. A. Some Pharmacodynamic Effects of 1-Hydrazinophthalazine (C 5968) with Particular Reference to Renal Function and Cardiovascular Response. *J Pharmacol & Exper Therap* 103: 368, 1951.

mimetic effect on the heart is previously blocked off by the use of ganglionic blockade (hexamethonium), hydralazine is a valuable adjunct in the treatment of hypertension, since ganglionic blockade does not alter the vasodepressor effect of the hydralazine but blocks at least part of the tachycardia and increased cardiac output¹⁰ that accompany administration of this drug alone. Out of 25 patients who did not obtain adequate hypotensive response to hexamethonium alone, we have been able to reduce the standing blood pressure to normotensive levels in 9 patients, and, in an additional 6, the systolic pressure was reduced more than 40 and the diastolic more than 20 mm Hg. Schroeder¹¹ has considered use of combined hexamethonium and hydralazine as the method of choice in the treatment of hypertension. In our opinion, the proper use for hydralazine in the treatment of hypertension is as an adjunct to hexamethonium or to surgical sympathectomy in patients who do not obtain adequate reduction in blood pressure when these procedures are used alone. This conclusion is reached because of the greater difficulty in regulating dosages in combined hexamethonium and hydralazine therapy and the higher incidence of side-reactions, which include headache, diarrhea, dyspnea, nausea, vomiting, and occasional paresthesias.

Phentolamine (Regitine), when given orally in effective doses to patients with essential hypertension, is usually associated with nausea, vomiting, weakness, and headache, so that less than 15% of patients can tolerate the drug for longer than one month. After three months, tolerance develops. Perhaps, the cardiac stimulant effect that has been observed occasionally will be a further contraindication to its widespread use, even by the parenteral route.

Dibenzylamine is the most specific and the most effective of the peripherally acting adrenergic blocking agents when taken orally. If the patient would continue taking this drug, hypotension could usually be maintained¹², however, in patients receiving Dibenzylamine reflex tachycardia and palpitations frequently develop as the blood pressure decreases, since the sympathetic nerves to the heart are not blocked. In addition, patients receiving this drug just "feel badly" without being able to identify the complaint, probably a cerebral effect. These side-effects are limiting factors in most instances. The tachycardia is especially difficult to control and is probably a contraindication to the use of this drug in the treatment of hypertension on a long term basis. Tachycardia does not follow the reduction in blood pressure from ganglionic blocking drugs, which block the sympathetic impulses before they reach the heart. Hypotensive reflex tachycardia is not, therefore, a factor in hexamethonium therapy. This is an important reason why long term therapy is so much more successful with hexamethonium than with Dibenzylamine.

SUMMARY AND CONCLUSIONS

1 The results obtained with orally administered hexamethonium in treatment of 120 patients with hypertension are summarized. The patients in this study were

treated as outpatients and were followed for 3 to 18 months after institution of therapy. The conditions of patient care closely paralleled those met in a general office practice. Therefore, the results obtained in the present study should closely parallel those obtainable in a general office practice, provided the therapist understands the pharmacodynamics of the drug and pays strict attention to the regulation of a dose schedule, which is an individual problem for each patient. There is no set dose, and the drug must be titrated in each patient to establish the proper dose schedule. If this is not done, excessive hypotension and serious complications may result.

2 Hexamethonium chloride, when administered orally, was found to be an effective agent for reducing the blood pressure. Of the 120 patients treated, all but 17 responded with a significant reduction in blood pressure. The amount of drug required was only slightly greater in the patients with diastolic blood pressures above 140 mm Hg than in those with diastolic pressures less than 120 but more than 100 mm Hg. No difference could be detected between patients who responded and those who failed to respond, except that patients with severe hypertension complicated by cardiac failure and moderate to severe renal disease seemed to be especially resistant to therapy. After the dose schedules were established, the outstanding problems in therapy were those related to decreased intestinal peristalsis and periodic variability in the hypotensive response. Of the patients treated for one year or more, about 64% are well controlled with hexamethonium as the only therapeutic agent.

10 Moyer J H, Huggins R. A., and Handley C. A. Further Cardiovascular and Renal Hemodynamic Studies Following the Administration of 1 Hydrazinophthalazine and the Effect of Ganglionic Blockade with Hexamethonium on These Responses. *J Pharmacol & Exper Therap* to be published.

11 Schroeder H. A. Control of Hypertension by Hexamethonium and 1 Hydrazinophthalazine. Preliminary Observations. *A M A Arch Int Med* 89: 523 1952.

12 Miller S I, Ford R. V. and Moyer J H. Dibenzylamine Results of Therapy in Patients with Hypertension and a Comparison with Hexamethonium, 1 Hydrazinophthalazine and Semi Purified Extracts of Verrum. *New England J Med* 248: 576 1953.

Measurement of Adrenal Cortical Function—The response of the adrenal cortex to exogenously administered ACTH is one of the most specific and predictable hormonal measurements available. Occasionally, ACTH given intramuscularly is inactivated or destroyed and hence does not reach its target gland—the cortex. Following the intravenous administration of ACTH, this almost never occurs. The response of the circulating eosinophils to ACTH is highly specific as an indication of increased adrenal secretion of 11,17-oxysteroids, this is not true for epinephrine. The measurement of 17-keto steroid and 11,17-oxysteroid excretion following ACTH administration increases the specificity of the interpretation of the ACTH response and adds an important quantitative evaluation. At present, there is no specific differentiating test for pituitary ACTH deficiency. Progressive increased responsiveness of the adrenal cortex, beginning from a subnormal level, is, however, highly suggestive of either primary, spontaneous pituitary insufficiency or adrenal atrophy secondary to adrenal steroid therapy.—G W Thorn, M D, Measurement of Adrenal Cortical Function, *The Journal of Clinical Endocrinology and Metabolism* May, 1953.

METHOD FOR THERAPEUTIC EVALUATION OF DIURETIC AGENTS ADMINISTERED ORALLY

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and

Harry Gold, M D, New York

In the treatment of the patient with congestive failure, the experience of recent years has firmly established the fact that it is the major if not the first order of business to put to work an effective system of diuretic medication. The recognition of this fact has altered the therapeutic approach and results in the management of these patients. In a study published from our clinics a few years ago,¹ it was shown that with the daily mercurial as the nucleus of the regimen for the routine treatment of congestive failure, approximately 90%, instead of the usual 50 to 60%, of hospital patients may be discharged free of congestive failure in an average of about a week, in place of about three or four weeks. One of the points of emphasis in the current planning for this group is that of adequate maintenance with the continued use of potent diuretic agents. The most satisfactory results have thus far been obtained with a maintenance regimen of injections of a mercurial diuretic, some patients being able to carry on satisfactorily with injections at intervals of a week or longer, others requiring two or three injections a week, and some even daily. The problem of frequent injections over a period of years has stirred up interest in the development of new mercurial as well as non-mercurial diuretic agents that might be used by the oral route.

Two of the problems presented by a new orally administered diuretic are similar to those with an injected diuretic, namely, that of diuretic potency and systemic toxicity. The orally administered agent, however, presents a third problem, that of local gastrointestinal irritation and the relation of the intensity of this action to that of systemic toxicity and of diuretic results. This seems to be the chief problem at the present time in regard to the agents currently in use and those experimental materials that we have had an opportunity to examine.

This paper describes results that we have obtained in the endeavor to relate the size of the obstacle of local gastrointestinal irritation to the effectiveness of the diuretic response for several agents that we have recently tested, and calls attention to the kind of orientation that is necessary to understand what can be accomplished and what may be expected of oral diuretic therapy with the materials available at present.

METHOD AND MATERIALS

The diuretic agents shown in the accompanying table were examined for two facts concerning the effects of their oral administration: (1) the diuretic potency and

(2) the incidence of sufficient local gastrointestinal irritation to give rise to unpleasant symptoms such as abdominal distress, diarrhea, nausea, and vomiting. The diuretic potency was determined by a method that was recently developed in our clinics² for the bioassay of diuretic agents in ambulant patients with congestive failure. The method meets the standard requirements for bioassays and yields results with a high degree of reliability, which is tested by the conventional methods for statistical significance. In essence, the technique is as follows: Selected adult ambulant patients with congestive failure in attendance at the cardiac clinics are accurately weighed, receive an intramuscular injection of meralluride (Mercurhydrin) as the standard, are weighed 24 hours later to ascertain the diuretic effect, and return for

Dosage and Effectiveness of Diuretic Agents in Cases of Congestive Failure

Drug	Dose Mg	No of Patients	Effect of the Dose in Terms of Intra- muscular Administra- tions of Meralluride (Cc.)	Per centage of Patients in Whom Gastro- intestinal Symptoms Developed	Rank of Prepara- tions on Basis of D E/ T I*
Ammonium chloride	10 000	46	0.20	48	52
Meralluride with ascorbic acid	720	20	0.25	52	78
Meralluride †	720	32	0.25	51	81
Theophylline salt †	375	33	0.23	56	89
Aminouracil deriva- tive †	1 000	30	0.30	55	103
Aminophylline	400	33	0.40	50	133
Thiomercurial †	174	44	0.41	50	168
Neohydrin	73.4	33	0.71	50	284

* D E = diuretic effectiveness of column 3. T I = toxicity incidence of column 4. This is an arbitrary expression showing that one preparation is more favorable than another if it shows a greater diuretic effect for a particular incidence of local toxicity.

† Experimental orally administered preparations not commercially available.

another weighing a week later when the loss of weight is usually restored. This is repeated with different doses of the standard. The various doses and the corresponding weight losses are then plotted against each other to form the dosage-response curve. The same procedure is then repeated with the preparation being tested. In the case of the study of cumulative effects from oral medication it is necessary, as in the case of ammonium chloride, to make use of a longer period, treatment for two days or more, between weighings for the diuretic effect. The results are two dosage-response curves from which the relative potency of the standard and the test preparations may be read off directly. In connection with the various doses of the orally administered material utilized for securing the data of the dosage-response curves, records are made of the incidence of disagreeable gastrointestinal effects. Each assay is based on the average response of

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1. Gold H and others: A System for the Routine Treatment of the Failing Heart. *Am J Med* 3: 665, 1947.

2. Greiner T and others: Bioassay of Diuretic Agents in Patients with Congestive Failure. *J Pharmacol & Exper Therap* 103: 431, 1951.

a group of 25 or more patients, the same patients serving both for the standard and the test preparation as a means of reducing sources of error that would arise from differences between different groups of patients

RESULTS

In the accompanying table we have assembled the results of such assays with eight diuretic agents—ammonium chloride, several mercurials, an aminouracil, and xanthines. In order to give the data therapeutic meaning, the results are presented in terms of the dose of the agent, the dose of intramuscularly administered meralluride to which its effect corresponded, and the amount of gastrointestinal trouble encountered in a group of patients with a particular dose. To explain the need for this type of analysis, one might take the position that an orally administered diuretic agent would be ideal if it were possible to obtain with each dose in a patient with congestive failure a diuretic response represented by a weight loss of approximately 2 lb (907.1 gm), as is the usual case with 1 cc of meralluride by the intramuscular route, without gastrointestinal side-effects, and that another agent might be considered quite unsatisfactory if, for example, diarrhea developed in two-thirds of the patients with a dose that provided a weight loss of only about 0.5 lb (226.8 gm), an effect equivalent to the effect of a 0.25 cc dose of meralluride intramuscularly. The diuretic effect is expressed in terms of intramuscular meralluride rather than as actual weight loss, since whether the average weight loss for 1 cc of the mercurial is 1 lb (453.5 gm), 2 lb, or 3 lb (1,360.7 gm) depends on the amount of edema the particular test group shows. This variation in the weight loss for a particular dose of the diuretic agent does not materially influence the results of an assay for potency by the method that we employ, since the method calls for comparing the test preparations with the standard preparation in the same patients. The data for the preparations included in the table were examined for information relating the diuretic potency to the incidence of gastrointestinal irritation, and an arbitrary expression for the relationship has been utilized to facilitate the ranking of the various materials.

It may be seen that all the orally administered materials produce gastrointestinal distress in some patients. It goes without saying that if the oral doses were small enough the incidence of gastrointestinal symptoms would vanish, but also would the diuretic response. We have therefore selected for inclusion in this table those doses of the various materials that would produce gastrointestinal symptoms in as high as from one-fourth to one-half of the patients, since even here the corresponding doses produced only moderate diuretic effects, and since with lower doses showing less gastrointestinal irritation the diuretic responses become negligible.

The results show that there are marked differences between different diuretic agents given orally when they are examined for their diuretic effectiveness in relation to the corresponding incidence of gastrointestinal irritation. Ranked in terms of the arbitrary expression of this relationship, they showed improvement in practical utility from ammonium chloride with a value of 52 up to one of the most recently developed compounds, Neohydrin (3-chloromercuri-2-methoxy-propylurea),³ with a value of 284.

This then appears to be the present status of oral diuretic therapy. The range of its utility is a limited one. None is free of unpleasant gastrointestinal side-reactions. It is not possible with any of the orally administered materials to secure such diuretic effects as follow the intramuscular injection of meralluride or similar injectable mercurials in doses of the order of 2 cc without a prohibitive incidence of gastrointestinal distress. The results show that the average diuretic responses to most of the orally administered materials are in the range that would be represented by about 0.5 cc of meralluride by the intramuscular route.

COMMENTS

One may consider this situation as favorable or otherwise, depending on the point of view. If one expects from current oral diuretic therapy a substitute for injectable mercurial therapy, the current situation is very unfavorable. On the positive side, there is to be considered the fact that, while for a particular preparation diarrhea may develop in one-fourth or one-half of the patients, there are the patients in the remaining one-half or three-fourths of the group who tolerate it well and may even take larger doses with an adequate diuretic response. These patients are to be discovered only by the method of trial, and when they are found it is in them that the difficult problem of long periods of injections may be eliminated. Another favorable aspect of current oral diuretic therapy is the prospect of substantially prolonging the interval between injections by appropriate dosage with the orally administered materials, especially those with the more favorable ratio between diuretic response and local gastrointestinal irritation. There is need for having other diuretic agents intended for oral use examined in the same way.

In recent editorials,⁴ attention was called to the importance of clinical pharmacology in the evaluation of agents intended for therapeutic use. What has been described in this paper is an example of clinical pharmacology that provides the kind of information that should be obtained in connection with all new diuretic agents intended for the oral route before they are put to use in a more general test by the less controlled method of the so-called clinical trial.

3 Greiner T and others: Human Assay of 3 New Mercurial Diuretic Agents. A Promising Preparation for Oral Use. *Proc Soc Exper Biol & Med* 80:117 1952. Moyer J H, Handley C A and Wilford I: Results over a 2 Year Period on 3 Experimental Diuretics Administered Orally to Patients with Cardiac Failure. *Am Heart J* 44:608 1952.

4 Gold H: The Proper Study of Mankind Is Man. editorial. *Am J Med* 12:619 1952. Beecher H K: Clinical Impression and Clinical Investigation. editorial. *J A M A* 151:44 (Jan 3) 1953.

Genes and Mermaids: Causation of Congenital Abnormalities.

—Some years ago, there came into my hands for dissection an abnormal fetus of nearly full term, of the very rare variety known as symphus dipus (with fused legs, showing elements of two fused feet), also called symmelus, or sirenomelus, and more usually a 'mermaid'. My search for the possible etiology of the condition has led me into many fields of study, from the folk-lore of antiquity down to modern investigations of morphogenesis, as I sought some reasonable explanation for the occurrence of gross abnormalities in general and of this one in particular. This search has so far led me to consider for the "mermaid" (really a "merman") the implications of the modern theory of the gene and its mutations as a possible basis of explanation: hence the title "Genes and Mermaids"—M F Hickey, M.D., *Genes and Mermaids: Changing Theories of Causation of Congenital Abnormalities*, *Medical Journal of Australia* May 9, 1953.

CLINICAL NOTES

TREATMENT OF PAROXYSMAL SUPRAVENTRICULAR TACHYCARDIA WITH METHOXAMINE

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and

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We wish to call attention to the use of methoxamine hydrochloride (Vasoxyl)¹ in the treatment of paroxysmal supraventricular tachycardia. Not only is this drug effective in arresting the tachycardia, but, because of its powerful pressor action,² it is especially useful in cases complicated by vascular collapse, a frequent occurrence.³ The mechanism of action is believed to be a reflex vagal effect following carotid sinus pressure elevation. Two cases of paroxysmal supraventricular tachycardia complicated by vascular collapse, successfully treated by this agent, have been reported⁴ and two more are now added. The first case is one of nodal tachycardia and the second, one of auricular tachycardia.

REPORT OF CASES

CASE 1—C. M., a 63-year-old man, was admitted to the New Britain General Hospital on July 6, 1952, complaining of tachycardia of sudden onset, accompanied by dyspnea. He had previously experienced two similar attacks of tachycardia, the first occurring two years and the second 10 months prior to admission. These attacks had each lasted about three hours. One was terminated by carotid sinus pressure and the other ended in an unknown manner. Examination revealed a pulse rate of 160 beats per minute, with a regular rhythm. There was no cyanosis or peripheral edema. There were no murmurs or rales in either lung field. The blood pressure was 110/65. An electrocardiogram revealed nodal tachycardia with a rate of 160.

Carotid sinus pressure caused a slight slowing of the pulse rate, but the tachycardia was not stopped. Quinidine therapy was started at 2:30 p.m. of the day of admission, at which time 0.2 gm. was given. This was repeated at hourly intervals for four doses. One-half hour after the last dose, the patient complained of loss of sight and shortly thereafter became delirious.

From the Department of Medicine, New Britain General Hospital.

1. This drug is a synthetic amine β -(2,5-dimethoxyphenyl) β hydroxy isopropylamine hydrochloride prepared in the research laboratories of Burroughs Wellcome & Company, Tuckahoe, N. Y. Baltzly, R. and Buck, J. S. Amines Related to 2,5-Dimethoxyphenyl Amine. *J. Am. Chem. Soc.* 62:164, 1940. Characteristics of β -(2,5-Dimethoxyphenyl)- β Hydroxyisopropylamine Hydrochloride. *Ibid.* 64:3040, 1942.

2. King, B. D. and Dripps, R. D. The Use of Methoxamine for Maintenance of the Circulation During Spinal Anesthesia. *Surg. Gynec. & Obst.* 90:659, 1950.

3. Wolff, L. The Cardinal Manifestations of Paroxysmal Tachycardia Vascular Collapse. *New England J. Med.* 232:527, 1945.

4. Nathanson, M. H. and Miller, H. Clinical Observations on a New Epinephrine-Like Compound, Methoxamine. *Am. J. M. Sc.* 223:270, 1952.

5. Berry, K., Garlett, E. L., Bellet, S. and Geffer, W. I. Use of Pronestyl in the Treatment of Ectopic Rhythms. *Am. J. Med.* 11:431, 1951.

6. McClendon, R. L., Hansen, W. R. and Kinsman, J. M. Hemodynamic Changes Following Procaine Amide Administered Intravenously. *Am. J. M. Sc.* 222:375, 1951.

7. Furman, R. H. and Gelger, A. J. Use of Cholinergic Drugs in Paroxysmal Supraventricular Tachycardia: Serious Untoward Reactions and Fatality from Treatment with Methacholine and Neostigmine. *J. A. M. A.* 149:269, 1952.

8. Barrow, J. G. Treatment of Paroxysmal Supraventricular Tachycardia with Lanatoside C. *Ann. Int. Med.* 32:116, 1950.

9. Youmans, W. B., Goodman, M. J. and Gould, J. Neo-synephrine in Treatment of Paroxysmal Supraventricular Tachycardia. *Am. Heart J.* 37:359, 1949.

10. Nathanson and Miller, Lu, F. C. and Melville, K. I. Concerning the Effects of Sympathomimetic Agents on Coronary Flow and Heart Action Recorded Simultaneously. *Federation Proc.* 10:320, 1951.

and incontinent. Examination revealed the patient to be in a state of vascular collapse, with a blood pressure of 30/10 and a cold, clammy, cyanotic skin.

Methoxamine was given intravenously in a 20 mg. dose. Ten minutes later, the blood pressure was 50/30, the pulse rate was not recorded. Thirty minutes after administration of methoxamine, the pulse rate was 88 and the blood pressure was 80/50. During the next 12 hours, the pulse rate remained at about 85, and the blood pressure rose gradually, stabilizing at 120/90. An electrocardiogram revealed a normal sinus rhythm, with rate of 85. The patient was discharged on the second hospital day.

CASE 2—M. S., a 65-year-old woman, was admitted to the New Britain General Hospital on Aug. 30, 1952, because of acute glaucoma. A peripheral iridectomy was done at 2:35 p.m. on the day of admission. The patient had a 35-year history of attacks of tachycardia, which were characterized by sudden onset and spontaneous termination. The duration of the attacks was from several minutes to two hours, and they usually occurred several times each year. Results of examination of the heart and lungs were not remarkable.

On the evening of Aug. 31, 1952, the day after the iridectomy, the patient complained of palpitation, substernal pain, and dyspnea. Examination at 10:30 p.m. revealed the patient's skin to be cold and clammy, the blood pressure was 90/85. The apical rate was found to be 200 per minute, the rhythm was regular. There were rales at the bases of both lungs. An electrocardiogram at 10:45 p.m. revealed an auricular tachycardia with a rate of 206. At 11:30 p.m., after carotid sinus pressure and eyeball pressure proved ineffective, 10 mg. of methoxamine was administered intramuscularly. At the next examination at 11:45 p.m., the heart rate was 102 and the blood pressure 120/90. At 12 midnight, an electrocardiogram was taken, which showed a normal sinus rhythm with a rate of 102. The rales at the lung bases decreased gradually, disappearing completely one hour after the injection of methoxamine. There was no further tachycardia during the remainder of the patient's hospital stay.

COMMENT

The rapid and safe action of methoxamine contrasts with the effects of some of the previous methods of treatment. Carotid sinus pressure and other mechanical measures are often ineffective. Orally administered quinidine is slow to act, and intravenous administration of quinidine is attended by some danger. Procaine amide (Pronestyl) hydrochloride, like quinidine, is slow-acting when given by mouth and somewhat dangerous when given parenterally.⁵ Because of its myocardial depressant effect, caution is advised when it is used in patients with heart disease.⁶ The hazards of methacholine (Mecholyl) are well known, and neostigmine (used in combination with methacholine, because it was ineffective alone) has led to alarming reactions.⁷ Lanatoside C given intravenously is generally considered to be superior to quinidine in the treatment of supraventricular tachycardia.⁸ This superiority is due to its rapidity and safety. It would appear, however, that lanatoside C is not as rapid in action as methoxamine.

Methoxamine may have an almost immediate effect when given intravenously. In the two cases reported by Nathanson and Miller,⁴ the attack was said to have ended within a minute. The order of the rapidity with which methoxamine acts is apparently similar to that of phenylephrine (Neo-synephrine), which admittedly acts more rapidly than lanatoside C,⁸ restoring normal rhythm in from 35 to 70 seconds after rapid intravenous injection.⁹ Methoxamine is safe because it does not cause cardiac irritability. In this regard it is safer than phenylephrine,¹⁰ which, while terminating supraventricular tachycardia by a mechanism similar to that of methox-

amine, i.e., reflexly through the carotid sinus and vagus, tends to cause ventricular extrasystoles.⁹ Methoxamine is perhaps unique among pressor amines in not causing cardiac irritability. It has been found not to increase the irritability of the cyclopropane-sensitized heart, whereas epinephrine, arterenol, and numerous other pressor amines commonly produce either supraventricular or ventricular tachycardia.¹¹ Clinical tests by Nathanson and Miller⁴ provided further evidence that methoxamine does not cause cardiac irritability. They found that, when it was administered to six patients with heart block, it did not cause an increase in the ventricular rate. In contrast, epinephrine and to a lesser degree arterenol do cause an increase in ventricular rate in heart block.¹² They found also that methoxamine did not inhibit the production of cardiac standstill by carotid sinus pressure in six patients with sensitive carotid sinuses. In contrast, epinephrine consistently abolishes the ability of the sensitive carotid sinus to produce cardiac standstill. They also found that production of a tendency toward bradycardia is the characteristic effect of methoxamine on normal sinus rhythm.

SUMMARY AND CONCLUSIONS

Methoxamine, a powerful pressor drug, successfully ended attacks of supraventricular tachycardia complicated by vascular collapse in two patients. This drug is characterized by great rapidity of action, and it differs from many other pressor amines in that it does not cause cardiac irritability. If further experience confirms its safety, it may prove to be the drug of choice in the treatment of supraventricular tachycardia.

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SUBACUTE THYROIDITIS TREATED WITH CORTISONE

Richard P Lasser, M D, Brooklyn

The clinical entity known variously as subacute nonsuppurative thyroiditis, deQuervain's disease,¹ or pseudotuberculous thyroiditis is characterized by a tender, firm, inflammatory enlargement of the thyroid gland resulting in (1) fever, (2) pain at the site of involvement and referred to either or both ears, (3) pain or difficulty in swallowing, (4) cough due to tracheal irritation, (5) a mildly hypermetabolic state, (6) marked elevation of the erythrocyte sedimentation rate, and (7) leukocytosis with polymorphonucleosis. This syndrome is readily recognizable and is entirely distinct, both clinically and pathologically, from other nonsuppurative thyroid conditions such as Riedel's struma and Hashimoto's disease.²

The cause of this inflammatory disease of the thyroid gland is not known, but it may be of viral origin. The pathological picture is that of intense inflammation with marked polymorphonuclear infiltration of the colloid follicles, forming what appear to be tiny milium abscesses or pseudotubercles. These have been so named because they appear as circularly arranged groups of foreign body giant cells. The disease may be mild and self-limited, responding adequately to bed rest and administration of iodides, or it may be severe, excruciatingly painful, and may result in persistent fever and disability. The excellent response to cortisone of a patient with subacute nonsuppurative thyroiditis is the subject of this report.

REPORT OF A CASE

A 33 year-old woman was admitted to the hospital on Aug 12 1952, with complaints of weakness, malaise, and pain in the left side of the neck for a period of one month. A low grade, variable fever had been observed during that time. Pain in the neck radiated to the head and to the inside of the left ear. The illness had not been preceded by any known upper respiratory infection, and the patient's history was noncontributory. The significant physical observations were obesity, temperature of 100.6 F, and moderate enlargement of the left lobe of the thyroid gland, which was firm and markedly tender. No enlarged cervical lymph nodes were palpated, and no signs of hyperthyroidism were observed. A diagnosis of subacute nonsuppurative thyroiditis was made. Laboratory studies showed an erythrocyte sedimentation rate of 82 mm in one hour, basal metabolic rate of -9%, hemoglobin level of 77% (12.3 gm [Sahli]), 4,010,000 erythrocytes, and 16,500 leukocytes, with 64% polymorphonuclears, 10% stab cells, 25% lymphocytes, and 1% monocytes. Serologic tests were negative, and blood sugar and blood urea nitrogen levels were within normal limits. No deviation of the esophagus was noted in barium studies.

Treatment consisted of bed rest, strong iodine (Lugol's) solution, 7 drops three times daily, aureomycin hydrochloride, 250 mg four times daily and analgesic agents for relief of pain. Rectal temperature remained about 100 F, but the patient felt somewhat better and asked to be discharged after five days of hospitalization. There was little change in the tenderness or size of the left lobe of the thyroid. One week later all medication was discontinued, and the patient returned to work. After three days the pain became severe. Both sides of the neck became extremely tender and painful, with pain radiating into both ears and to both sides of the head. Severe pain on swallowing was noted for the first time. The temperature rose to 102 F. The patient was readmitted to the hospital in acute distress. The entire thyroid gland, including the isthmus and pyramidal lobe, was markedly enlarged. Laboratory studies showed an erythrocyte sedimentation rate of 126 mm in one hour, a hemoglobin level of 70% (11.2 gm), 3,920,000 erythrocytes, and 19,000 leukocytes with 74% polymorphonuclear neutrophils, 6% stab cells, 18% lymphocytes, 1% monocytes, and 1% eosinophils.

Treatment again consisted of Lugol's solution, 7 drops three times daily, and aureomycin, 250 mg four times daily. Frequent injections of meperidine (Demerol) hydrochloride and oral administration of codeine were necessary but even these did not control the pain and discomfort. After two days, cortisone acetate in four divided doses totaling 100 mg daily was given by injection, and the patient was placed on a low sodium diet (less than 500 mg of salt daily). Diminution in pain and tenderness was observed after the first two injections of cortisone. Within 36 hours, virtually all tenderness had disappeared from the thyroid gland, and 24 hours later, the pain was entirely gone. A distinct decrease in the size of the gland was noted 48 hours after cortisone therapy was begun, and further rapid decrease was noted during the next five days. The temperature remained elevated for four days and thereafter returned to normal levels. Four days after institution of cortisone therapy the leukocyte count fell to 14,500 and one week later had

11 Stutzman J W, Pettinga F L and Fruggiero E J. Cardiac Effects of Methoxamine (β [2,5-Dimethoxyphenyl] β Hydroxyisopropyl Amine HCl) and Desoxyephedrine During Cyclopropane Anesthesia. *J Pharmacol & Exper Therap* 97:385 1949.

12. Nathanson, M H and Miller H. The Action of Nor Epinephrine and of Epinephrine on the Ventricular Rate of Heart Block. *Am Heart J* 40:374 1950.

1 deQuervain F and Giordanengo G. Die akute und subakute nichttrigle Thyreoiditis. *Mitt a d Grenzgeb d Med u Chir* 44:538 1936.
2 (a) Crile G., Jr. Thyroiditis. *Ann. Surg* 127:640 1948. (b) Lasser R P and Grayzel D M. Subacute Thyroiditis. *Struma Fibrosa Struma Lymphomatosa*. A Clinical Pathological Study. *Am. J. M. Sc* 217:518 1949.

fallen to 12,500. The sedimentation rate remained high and declined slowly, so that after 12 days of cortisone therapy it was still 105 mm in one hour. After eight days of cortisone therapy, 100 mg per day, the dose was reduced to 50 mg daily in four divided doses. The pyramidal lobe again became tender and slightly enlarged. The dose was increased to 75 mg daily, and the symptoms subsided. The patient was then discharged from the hospital and maintained on orally administered cortisone, 75 mg daily in four divided doses. After another week (19 days of therapy), the sedimentation rate had fallen to 18 mm in one hour. Cortisone therapy, 50 mg daily, was continued for another week and then discontinued entirely. No further recrudescence of the thyroiditis was observed, and there was no return of pain, tenderness, or fever. When seen one month later, the patient had remained entirely well. The basal metabolic rate obtained at that time was -15%. There was still some residual enlargement of all lobes of the thyroid gland. Neither hyperthyroidism nor myxedema has so far been observed.

COMMENT

Cortisone may be expected to influence subacute non-suppurative thyroiditis favorably because of its action of suppressing inflammatory reactions, regardless of their cause. Cortisone provides a means of rapidly bringing the severe pain under control and of arresting the progress of this disease that presumably results from the presence of a marked inflammatory change in the thyroid gland and local structures. Cortisone may exercise a second therapeutic effect by depressing thyroidal activity, and it has been observed to depress the uptake of radioactive iodine³ by the thyroid gland. This seems to indicate that cortisone effects a reduction in hormone production and colloid formation. The use of cortisone in thyroiditis has already been reported by Crile,⁴ who noted a rapid reduction in the size of the gland and decrease in pain and tenderness. He stated, however, that recrudescence followed withdrawal of cortisone after short courses of therapy. It is possible that there was no recurrence in the case reported here because cortisone therapy was continued until after the sedimentation rate had returned to normal levels. This process did not occur rapidly, but required about three weeks' time. The return of the sedimentation rate to normal levels might be used as guide to cessation of cortisone therapy.

Other therapeutic measures, such as administration of Lugol's solution, penicillin, or other antibiotics, have not been conclusively shown to affect the course of this disease and did not do so in the present case. Radioactive iodine administration would not have been effective, because there is very little uptake by the gland during the inflammatory, acute phase of thyroiditis.⁵ Radiation therapy (600 to 700 r) has proved very useful but generally requires one to two weeks to reach full effect.⁶

A case has recently been reported in which thyroiditis developed while the patient was receiving cortisone

therapy for rheumatoid arthritis.⁷ However, in view of the fact that the thyroidal swelling became fluctuant and that the radioiodine uptake by the gland was 35%, it is probable that the condition was of a true suppurative or bacterial nature. The pathological process would then be entirely different from that of the case reported here.

SUMMARY

A patient with severe, febrile, painful, nonsuppurative subacute thyroiditis showed rapid remission of the symptoms and signs of the disease when treated with cortisone. Recrudescence did not occur when therapy was continued until after the sedimentation rate had returned to normal levels. Other therapeutic measures such as administration of strong iodine (Lugol's) solution, penicillin, and aureomycin did not appear to affect the course of the disease.

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POISONING IN A CHILD SIMULATING DIABETIC COMA

REPORT OF A CASE

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and

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The clinical and laboratory picture resulting from the ingestion of poisons is often varied and bizarre. We have found no report in the literature, however, of a condition simulating diabetic coma that followed the swallowing of poisonous berries.

REPORT OF CASE

A 5-year-old white girl was admitted to the Beth El Hospital on Aug. 26, 1952, with the chief complaints of vomiting, abdominal pain, and fever. The child was apparently well until the night before admission, when she complained of pain in the abdomen and vomited. The temperature was normal. The next morning the pain became more intense and localized mostly about the umbilical region. The vomiting continued, and the vomitus was bile stained, the temperature rose to 102 F. A blood count and results of a urinalysis were found to be within normal limits. In the next few hours the child's general condition grew worse, and she was hospitalized.

The past history disclosed nothing remarkable. She had not suffered from any childhood diseases, a maternal grandfather had diabetes. The parents were questioned closely as to the possibility of the child having swallowed some poison, but they denied knowledge of any such act.

On admission, the picture presented was that of an acutely ill child who was semicomatose and had a temperature of 105 F. The pulse was rapid but regular, and the respirations were not labored. The skin was hot, dry, and free of any discoloration. The pupils were somewhat dilated but reacted to light. There was no neck rigidity, no abnormal reflexes were elicited. The heart and lungs were normal. There was some spasm and rigidity of the recti muscles, but no abdominal tenderness. A 5% solution of glucose in sodium chloride solution was given intravenously, but before this was done blood was drawn for chemical studies, and the child was catheterized for a urine specimen. The subsequent findings were revealing. The urine specimen was free of albumin but showed 4+ glucosuria and acetoneuria. The blood chemical findings disclosed a glucose

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4. Crile G Jr. Thyroiditis. *Ann Int. Med.* 37: 519, 1952.

5. (a) Hamilton H E, Kirkendall W M, and Barker S B. Radioactive Iodine Uptake of the Thyroid and Plasma Protein Bound Iodine in Subacute Thyroiditis. *J Clin. Investigation* 29: 819, 1950. (b) Crile G Jr. and Rumsey E W. Subacute Thyroiditis. *J A M A.* 142: 458 (Feb. 18), 1950.

6. Crile G Jr. Crile and Rumsey E W.

7. Traut E F. Thyroiditis During Treatment with Cortisone. *J A M A.* 149: 832 (June 28), 1952.

From the Department of Pediatrics, Beth El Hospital.
Mr. Landon Winchester, Botanist of the Brooklyn Botanical Gardens, identified the plant that had poisoned the child.

content of 290 mg per 100 cc and a carbon dioxide combining power of 14 vol %

After we received this report, our impression was that we were dealing with some overwhelming infection and diabetic coma. In view of the report that the urine was normal prior to hospitalization it was decided to withhold insulin therapy until further laboratory study. Intravenous administration of fluid in the form of 1/6 molar lactate and distilled water instead of glucose solution was begun. Antibiotic therapy was given, consisting of one million units of penicillin intramuscularly every three hours and 100 mg of oxytetracycline (Terramycin) in 50 cc of distilled water intravenously every four hours. Adrenal cortical extract was administered, with 10 cc. given initially and 5 cc every four hours.

At 8:20 that evening the temperature rose to 106 F, and the child began to have tonic and clonic convulsions. Phenobarbital was given intramuscularly to control the seizures. At 9:20 p.m. the blood glucose level fell to 210 mg per 100 cc, without insulin therapy, there was 3+ glucosuria, but the twitchings and seizures still persisted and the temperature remained high. A spinal tap done at this time revealed normal fluid content. After continuous antipyretic and hydrotherapy, the temperature fell to 103 F at midnight and the glucosuria was 2+. The convulsions were diminishing. At 6 a.m. the child called for its mother and began taking fluids by mouth. At 10 a.m. the temperature was 100.2 F, and the child sat up. The following day, 48 hours after admission the child was afebrile, and all the laboratory findings were within normal limits. The child was discharged on the fifth day of hospitalization.

One week after the child was discharged, we were notified by the mother that the child confessed to having eaten some berries picked off a bush in the park, just prior to the onset of the illness. A twig with some of the berries was submitted to the Brooklyn Botanical Garden for identification and was subsequently shown to be *Rhodotylos* of the *rosacea* family, a bush imported from Japan whose berries are called "jet beads."

These berries contain the glycoside amygdalin, which, when ingested, breaks down into hydrocyanic acid. Dr. John C. Krantz, professor of physiology of the University of Maryland Medical School, advanced a possible explanation of the clinical condition found in our case. He stated that "it was possible that this drug (hydrocyanic acid) has a centric action in the region of the hypothalamus and that as one has here a glycemic center as well as a heat center, each of these may have been effected by the drug, producing a hyperthermia and simultaneously contributing to the hyperglycemia."

COMMENT

It is difficult to estimate the actual number of accidental poisonings that occur in children, because as a rule only unusual or fatal cases are reported. Aikman¹ considers that the fatal cases alone amount to about 800 a year in the United States. Where the clinical picture is irregular and confusing and poisoning is suspected, the parents and other persons in close contact with the patient must be questioned closely. Although we did not elicit such a history, our clue that this might not be a true diabetic coma was suggested by the report of normal urine obtained several hours prior to admission. A public health question is also posed by this incident because of the evident availability to children of poisonous berries in city parks.

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¹ Aikman, J. in *Brenneman's Practice in Pediatrics*. McQuarrie, I. editor. Hagerstown, Md. W. F. Prior Company Inc. 1948. vol. 1, chap. 17, p. 3.

COUNCIL ON PHARMACY AND CHEMISTRY

REPORT TO THE COUNCIL

The Council has authorized publication of the following report from its Committee on Research

R. T. STORMONT, M.D., Secretary

The Committee on Research through its Subcommittee on Steroids and Cancer, is sponsoring a collaborative study on steroids and mammary cancer. Reports summarizing this work have been published (Estrogens and Androgens in Mammary Cancer: A Progress Report, report of the Council on Pharmacy and Chemistry, J. A. M. A. 140:1214 [Aug. 13] 1949; Proceedings of the First Conference on Steroid Hormones and Mammary Cancer, American Medical Association, Chicago, April 4-7, 1949; Current Status of Hormone Therapy of Advanced Mammary Cancer, report of the Council on Pharmacy and Chemistry, J. A. M. A. 146:471 [June 2] 1951). In the following report, the conclusions expressed are those of the authors, and final conclusions of the Subcommittee must await evaluation of the studies now in progress.

PAUL L. WERMER, M.D., Secretary

EFFECTS OF INTENSIVE SEX STEROID HORMONE THERAPY IN ADVANCED BREAST CANCER

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and

Ira T. Nathanson, M.D., Boston

Intensive therapy with estrogens and androgens is employed in the palliative treatment of advanced cancer of the breast.¹ Since observations of the systemic effects and complications of this therapy may provide a clue to the mode of action of the sex steroids in breast cancer, they may be important. Many effects of sex hormone therapy have been recorded, but additional manifestations not commonly recognized have become prominent and more frequently noted at the higher dosages usually employed in breast cancer. The purpose of this report is to record these reactions and their relative frequency with intensive and prolonged hormone therapy.

The duration of treatment varied from a few days to several years. Deleterious reactions occurred early in some patients, necessitating discontinuance of therapy. Thus, effects that might have occurred at later intervals could not be recorded. Most of the patients, however, were treated for a minimum of one month, and a large majority received continuous therapy for considerably longer periods. The causes of the shorter periods of observations were as follows: (1) development of later re-

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From the Medical Laboratories of the Collis P. Huntington Memorial Hospital at the Massachusetts General Hospital, the Tumor Clinic of the Massachusetts General Hospital and Pondville Hospital (Massachusetts Department of Public Health) Walpole, Mass. Dr. Kennedy was formerly Public Health Service Research Fellow of the National Cancer Institute and Clinical Research Fellow of Harvard University at the Massachusetts General Hospital; he is now Assistant Professor of Medicine, University of Minnesota School of Medicine.

The following pharmaceutical firms supplied the hormones used in this study: Ayerst McKenna & Harrison Limited conjugated estrogenic substances (Premarin), Ciba Pharmaceutical Products Incorporated testosterone propionate (Perandren) and ethinyl estradiol (Eticytol) Schering Corporation, testosterone propionate (Oreton) and ethinyl estradiol (Estinyl) E. R. Squibb & Sons, diethylstilbestrol and dienestrol, Wallace & Tiernan Products Inc. mestilbol (Monomestrol) and dimethyl ether of diethylstilbestrol and White Laboratories, Inc. dienestrol.

actions necessitating cessation of therapy, (2) discontinuance of use of the hormone because of rapidly progressing disease, (3) systematic interruption, a procedure in the therapy program whenever an excellent response was obtained,^{1k} or (4) death of the patient

It will be shown that the incidence and degree of effects continued to increase as therapy was prolonged. Since some

TABLE 1—Minimal Incidence of Side-Effects of Testosterone Propionate in Eighty-Two Patients with Advanced Breast Carcinoma

Side-Effects	No of Cases Analyzed *	No Demonstrating Side Effects	Incidence %
Hoarseness	77	47	61
Hirsutism	70	40	53
Hair loss	50	12	22
Acne	71	21	28
Ruddy complexion	64	28	44
Drowsiness	70	7	10
Nausea	71	13	18
Vomiting	70	8	11
Feeling of well being	76	59	76
Weight increase	76	54	71
Libido increase	59	22	37
Edema	67	11	16
Hypercalcemia	73	7	10
Uremia	72	3	4

* Figures in this column represent those patients in whom positive or negative observations were recorded

of the effects were not recognized at the beginning of the study, the data presented represent the absolute minimum but reflect the potentialities of long-term therapy

SPECIFIC EFFECTS OF ANDROGENS

These data are based on an analysis of 82 consecutive female patients with advanced breast cancer who received 50 to 100 mg of testosterone propionate in oil, intramuscularly, three times weekly (table 1)

Hoarseness—Hoarseness, which was the commonest of the masculinizing phenomena resulting from androgen therapy, occurred in a minimum of 61% of the patients. The incidence increased with prolonged or more intensive therapy (fig 1). The changes varied from slight huskiness to a coarse, deep, masculine voice. Some patients complained of a persistent cold, sore throat, or rasping voice, others experienced constriction of the larynx and easy fatigability (or "cracking") of the voice. Singers found they could utter only discordant sounds. Apparently, these laryngeal changes are similar to those that develop in boys at puberty. Androgenic hormones produce hypertrophy of the vocal cords and, if continued, may lead to enlargement of the larynx.² Laryngoscopic examination of women in whom these changes develop reveals a generalized, suffused swelling, with injected blood vessels running the length of the cord. A pale, off-white color is a consistent feature of the late changes.³ Edema occurs first but hypertrophy of the muscle of the cord may result later. In the majority of our patients, discontinuation of the male hormone was usually followed by a gradual return of an essentially normal voice. In others, the voice failed to return to pretreatment quality, which undoubtedly resulted from persistence of the hypertrophy of the vocal cords.

Hirsutism—Hirsutism occurred in at least 52% of patients and was generally more noticeable in brunettes and in women with a tendency to hirsutism. The degree of hirsutism varied. With intensive and prolonged treatment, hirsutism usually increased and simulated a more typical masculine distribution (fig 1). Extreme hypertrichosis, characteristic of masculinizing tumors, was also observed. Variants in the sites of hair distribution were commonly seen. This raises the question of the receptor capacities of the end-organ. The presence of increased hair, especially on the face, disturbed many women and prompted measures for its removal. This induced-hypertrichosis, as a rule, gradually disappeared after cessation of therapy.

Alopecia—Partial loss of scalp hair, often associated with hypertrichosis elsewhere, was noted in 22% of the patients. The hair of the scalp became dry and coarse and fell out whenever it was combed. Recession at the temples was noted in some patients, and occasionally baldness of the vertex of the scalp resulted. When use of the hormone was stopped, hair reappeared in these areas. Although hair loss occurs in other debilitating diseases, these women generally felt well and maintained satisfactory nutritional states. Occasionally, the hair of patients who received large doses of androgens turned gray. It has been postulated that androgens produce alopecia primarily in persons who have a hereditary susceptibility to baldness. This was strikingly demonstrated in eunuchs who received androgen therapy.⁴ Queries of women in whom such changes developed revealed that their male predecessors had had a high incidence of spontaneous alopecia.

Dermatological Changes—Aesthetically distressing was the appearance of acne. The lesions resembled those seen in pubertal children and varied from small milia and scattered papules to extensive furuncles and papules over the face, back, and chest. Increased oiliness and thickening of the skin also were noted. Known effects of androgens have been suggested to explain the acne: an increase in sebaceous secretion and hyperplasia of the epithelial cells at the mouth of the hair follicle.⁵ With superimposed infection, papules and pustule formation may follow. The customary measures for skin hygiene were of benefit in the treatment of the acne, although cessation of therapy was usually followed by remission of this complication. In addition, women with brittle nails noted softening, increased flexibility, and a decrease in chipping. These effects were previously unobserved after prolonged androgen therapy but were confirmed on examination.

Ruddy Complexion—The complexion of patients treated over long periods frequently became ruddy and flushed, some times resembling the faces of patients with Cushing's disease. The face, anterior neck, chest, and occasionally the extremities became erythematous and blanched when pressed. The skin was usually warmer than normal, and patients complained of constant hot flushing unlike that of the menopause. Women who ordinarily had cold hands and feet were often relieved of this condition.

In a substantial number of patients with ruddiness of complexion, hemoglobin values rose from subnormal or normal levels to those as high as 19 gm per 100 cc. An elevation of the red blood cell count to 6 million cells and an increase

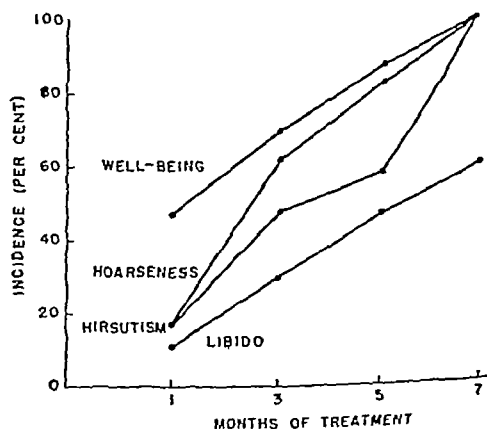


Fig 1—Incidence of side-effects of androgenic hormones with prolonged continuous therapy

in the hematocrit values accompanied the rise in hemoglobin. The mechanism of this hemopoietic stimulation by androgens is unexplained, but bone marrow studies of 12 patients revealed hyperplasia of the erythroid elements. The apparent increase in red blood cell volume or a vasomotor response may account for the flushing. Both ruddiness and flushing disappeared rapidly after omission of testosterone, but the hemoglobin level remained elevated for weeks.

Increased Weight and Well-Being—One of the most consistent effects observed was a feeling of well being, which was recorded in 76% of the cases. Patients depressed and debilitated by the disease often became euphoric. Well being appeared to be an effect of the androgen itself, irrespective of the course of the disease. This symptomatic response was very noticeable in some patients, despite progress of the can-

TABLE 2—Incidence of Side Effects of Estrogens Observed in 235 Patients with Advanced Mammary Carcinoma

Side-Effects	No of Cases Analyzed*	No Demonstrating Side-Effects	Incidence %
Anorexia	228	129	57
Nausea	230	133	58
Vomiting	223	72	32
Abdominal distress	209	12	6
Diarrhea	201	10	5
Dizziness	189	8	4
Headache	189	18	7
Drowsiness	189	16	8
Libido increase	141	8	2
Nipple pigmentation	183	150	80
Areolar pigmentation	185	143	77
Axillary pigmentation	114	46	40
Scar pigmentation	68	12	18
Skin rash	142	2	1
Itching	143	6	4
Breast engorgement	178	36	20
Breast tenderness	179	29	16
Vaginal bleeding	160	63	33
Withdrawal bleeding	121	51	42
Amenorrhea	8	7	88
Urinary urgency and incontinence	149	41	28
Edema	193	65	34
Congestive failure	191	17	9
Congestive failure (deaths)	191	5	3
Hypercalcemia		2	

* Figures in this column represent those patients in whom positive or negative observations were recorded

cer. Patients frequently bedridden by pain and debility, particularly from osseous lesions, became rehabilitated. X-ray examination of these patients sometimes revealed actual progression of osteolytic lesions. This discrepancy between the subjective and objective responses, which occurred to a lesser degree in a fairly large percentage of patients, emphasizes the difficulties encountered in evaluating the response of the tumor when based on symptomatology alone.⁸ Occasionally relief of pain as a result of testosterone therapy was more satisfactory than that obtained from morphine, which suggested an analgesic action.⁷

Some patients gained so much weight that they became obese, dyspneic, and generally uncomfortable. At times, it was necessary to give these women a reducing diet during active androgen therapy. These effects can be partially explained by the anabolic capacities of the androgens, which may produce nitrogen retention and promote protein synthesis, with a resultant gain in body weight and increase in muscle tone. Fluid retention in some patients, which may be an accompaniment of androgen therapy without evidence of edema, can account for small weight gains as explained later.

Increased Libido—After some months of androgen therapy, 37% of the patients noted an increase in libido, the incidence increased with prolonged therapy (fig 1). This may not represent the true incidence, since some patients were reluctant to discuss it even during direct questioning. The sensation was expressed as a heavy feeling in the pelvis, an increase in the frequency of the sexual act, or a loss of previous frigidity. The degree of accentuation of these sexual impulses varied. Married women were emotionally less disturbed than widows or spinsters. Some found the change so unpleasant that use of the hormone was discontinued. A relatively prompt disappearance of the symptoms usually followed within a short time. This is in accord with previous studies, indicating that androgens cause an increased susceptibility to psycho-

sexual stimulation, enlargement of the clitoris, increased sensitivity of the external genitalia, and a greater intensity of sexual gratification.⁸ The clitoris of each patient was not examined systematically, but cursory observations revealed definite enlargement in a number of patients during androgen therapy. An incidence of 28% was reported.⁹ The increased feeling of well being and improvement of the breast cancer might possibly have contributed to this libido-inciting effect.

Drowsiness, Nausea and Vomiting—A few patients noted headaches, drowsiness, nausea, and vomiting of brief duration at the beginning of androgen therapy, apparently unassociated with hypercalcemia. Serum calcium determinations were normal. These effects seemed to be produced by other reactions of the hormone, although the presence of incipient or transient hypercalcemia must be considered when they occur. In no patient were these symptoms severe enough to necessitate discontinuance of therapy.

SPECIFIC EFFECTS OF ESTROGENS

Data were available for analysis of the effects of estrogens in 235 cases (table 2). Diethylstilbestrol was used as the reference standard in 178 patients. The usual dosage was 15 mg per day orally, but variations from 5 to 400 mg daily were used. Equivalent dosages of other natural and synthetic estrogenic hormones were employed. All but 20 patients included in the analysis received continuous treatment for at least one month and several for more than one year. The remaining patients discontinued the medication early because of severe anorexia, nausea, and vomiting.

Gastrointestinal Symptoms—Anorexia, nausea, and vomiting, the commonest gastrointestinal symptoms, were fleeting at the start of therapy but persisted in some patients. Of 235 patients, 58% had variable degrees of nausea, and vomiting occurred in 32%. With careful attention to the management of these symptoms and adjustment of dosage, the patient usually became tolerant to more intensive and prolonged therapy. If the patient became severely nauseated by the initial dosage, the daily dose of the hormone was decreased or administered only at bedtime. Gradually the dose was increased as tolerated, until the desired dosage could be administered. Occasionally, despite all efforts, patients were unable to accept the standard dose of the initial estrogen but could tolerate smaller amounts or another estrogenic preparation. This latter

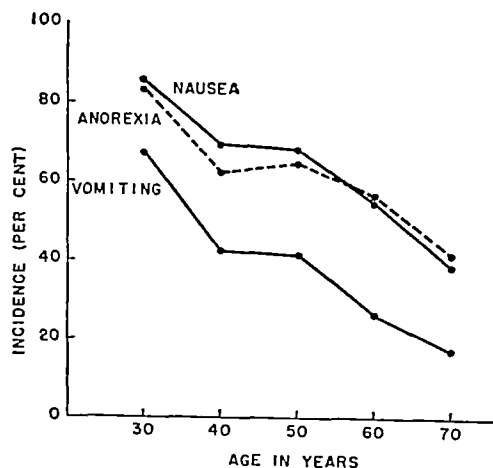


Fig 2.—Incidence of gastrointestinal symptoms caused by estrogens with respect to increasing age.

phenomenon needs clarification. A small percentage of patients were unable to tolerate estrogenic hormones of any kind at any dosage. The incidence and degree of gastrointestinal symptoms decreased with advancing years (fig 2). The usual measures to combat nausea and vomiting have seldom been of value in the management of patients treated with estrogen. Patients who tolerated an initial course of estrogens sometimes experienced nausea and vomiting during interrupted courses of the hormone or, occasionally, later during continu-

ous treatment. In a few patients, epigastric pains of short duration were noted. In others, soft or increased frequency of bowel movements or diarrhea occurred, but rarely were these symptoms severe enough to warrant treatment or discontinuance of the hormone.

Dermatological Changes—In elderly women with dry, coarse, atrophic skin, occasionally increased tissue turgor and softening of the skin developed after prolonged estrogen



Fig 3—Appearance of areola, nipple and axilla. A, prior to estrogen therapy; B, after four months of estrogen therapy. Note the stippled appearance of the pigmentation in linear folds of the axilla.

therapy. A few patients noted flushing of the face, which was seen frequently after administration of testosterone. Itching occurred in a few persons. Rarely, skin lesions consisting of diffuse areas of small papules or erythema were noted.

Pigmentation—Pigmentation of the nipples was present in about 80% of the women treated with estrogenic hormones. The earliest and sometimes the only change was a redness of the nipple and areola, particularly in patients who did not have previous pigmentation (fig 3). True pigmentation varied from a faint to a deep brown, frequently covered by a thick, dark, waxy coating. Removal of this waxy substance revealed definite pigmentation beneath it. The pigmentation, sometimes limited to the nipple, usually involved the areola.

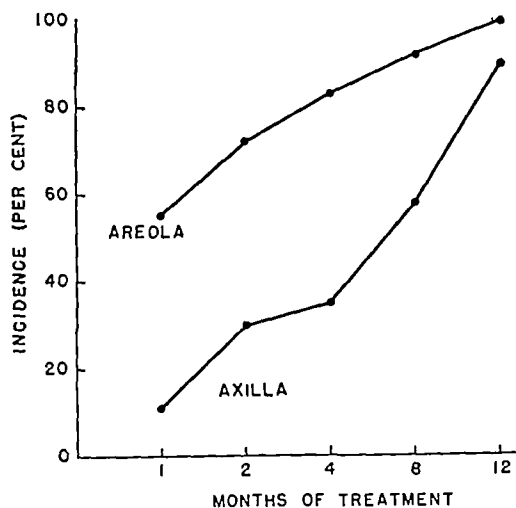


Fig 4—Incidence of pigmentation with prolonged estrogen therapy.

and was sharply demarcated at the border. As a rule, the pigment persisted as long as the hormone was administered, although occasionally the color became less intense. After cessation of therapy the pigmentation persisted in some patients for many months. X-ray treatment to the areolar areas usually prevented the formation of pigmentation or destroyed that already present.

During the study, some patients complained that the axilla could not be cleansed. The pigmentation was stippled and was diffuse or confined about the hair follicles in the linear folds

(fig 3). Approximately two-fifths of the patients in this series had axillary pigmentation. The incidence was probably larger, since this aspect was not specifically observed early in the studies. Prolonged estrogen therapy is usually associated with an increased incidence of pigmentation (fig 4). Pigmentation also occurred in scars as well as in those areas usually affected during pregnancy. Pigmentation was noted in the labia, around or in the umbilicus, and in the linea alba. More recently, pigmentation of the linear lines of the anterior cervical region has been noted. Pigmentation of the buccal mucosa or palms was not seen.

Breast Alterations—The clinically detectable response of the uninvolved breast tissue to estrogens varied, but it appeared to be governed, to some extent, by the age and menstrual status of the patient. Such signs as tingling or tenderness of the nipples, engorgement, or venous dilatation appeared. Although the group of patients was heterogeneous, about 20% of the entire group exhibited these signs. The changes were confined mostly to premenopausal and menopausal women. Clinical alterations in elderly women, except for pigmentary changes, were considerably less detectable (fig 5). This implies that the atrophic breast tissue of the postmenopausal and aged woman is not capable of response to the stimuli provided in the prime of menstrual life.

Histological changes may occur without clinical signs, but ordinarily they accompany the overt manifestations.¹⁰ It is quite possible that the status of the breast tissue at the be-

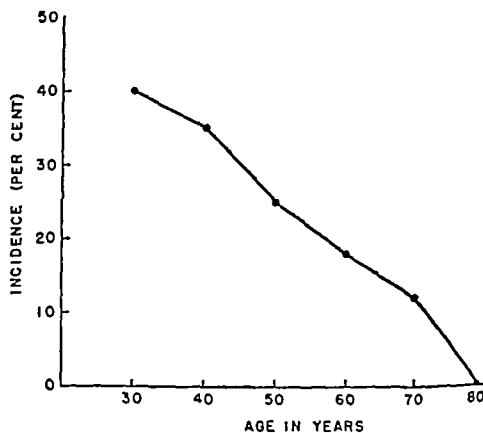


Fig 5—Incidence of breast engorgement from estrogen therapy in women with metastatic carcinoma of the breast.

ginning of estrogen therapy may be a determining factor in the responsiveness of the tumor.

Uterine Bleeding—In contrast to the breast, the postmenopausal endometrium seems to be more sensitive to the action of estrogens regardless of the age of the patient. The latter, however, appears to be a factor in the responsiveness. Large dosages of estrogens produce amenorrhea in premenopausal women with breast cancer, which agrees with observations made in the treatment of patients with other abnormalities.¹¹ This is thought to be partially accomplished by inhibition of pituitary gonadotropins, but estrogens may also act directly on the endometrium. These and other studies reveal that intensive estrogen therapy may exhaust the endometrium in its capacity to respond. Continuous and intensive estrogen therapy in postmenopausal patients with breast cancer resulted in uterine bleeding in about one-third of the patients during therapy. The signs consisted of spotting or staining for brief intervals or a flow simulating a normal menstrual period. Generally, no measures were required for control of the bleeding except cessation of the hormone. In some cases, uterine bleeding could also be controlled by sharply increasing the dose of the estrogen. Occasionally, bleeding was sufficiently severe and prolonged to require curettage; the endometria of the patients subjected to this procedure usually revealed hyperplastic changes. (Prolonged bleeding should lead to the suspicion of stimulated fibroids or cancer of the endometrium.) In younger postmenopausal patients, the bleeding occurred frequently during therapy and almost invariably happened

after treatment was withdrawn. Contrariwise, in elderly women with presumably atrophic endometriums, bleeding was encountered less often during therapy and after withdrawal of therapy. In this latter group, resumption of estrogen therapy resulted in the pattern commonly seen in younger women, for bleeding occurred during the therapy as well as after cessation of the hormone. The incidence of uterine bleeding increased with prolongation of therapy (fig 6).

These observations prompt the following suggestions: 1 The endometrium, even though apparently atrophic, is sensitive to estrogens many years after the menopause. 2 Once an atrophic endometrium is primed, it responds differently, behaving like that of women in the immediate postmenopausal phase. Generally, however, the incidence of uterine bleeding decreases in successive years after the menopause, both during therapy or after withdrawal (fig 7). This raises the question of receptivity of the endometrium, which involves blood supply and cellular responsiveness.

Urinary Urgency and Incontinence—Another effect of large doses of estrogens is frequency and urgency of urination. The urgency of urination is frequently associated with urinary incontinence, usually of the stress type. This was not recognized early in the study because of reluctance of the patients to discuss it. So distressing was the urgency and incontinence that many patients wished to discontinue the medication. Omission of the estrogen was followed by prompt disappearance

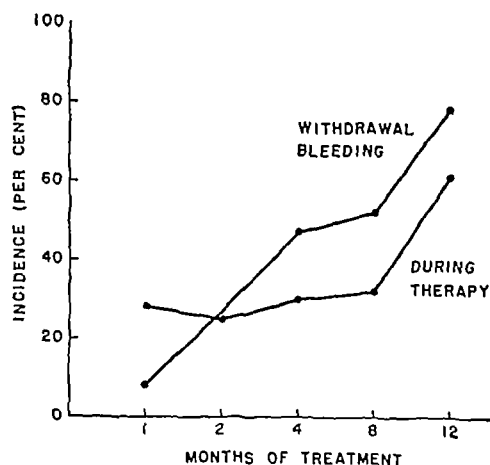


Fig 6—Incidence of uterine bleeding after prolonged estrogen therapy

ance of these symptoms. These urinary symptoms occurred primarily in older women who had borne children. Although the mechanism is not understood, estrogens may affect the sphincter and bladder musculature.

Miscellaneous Effects—Early in the course of therapy, a few of the patients experienced headaches and dizziness. These symptoms were present in patients receiving larger dosages of estrogens than those usually employed in this program. Cerebral edema might possibly account for these effects. Among other symptoms were drowsiness, 'jumpiness,' apprehension, lack of pep, depression, and weakness; these disappeared after treatment was omitted. Increase of libido was reported in a very small percentage of patients.

Occasionally, glossitis, consisting of a bright red, smooth tongue resembling that caused by vitamin B deficiency, developed in patients receiving estrogens. These patients were on a diet apparently adequate in vitamin B complex, but it is possible that the estrogens increase the demand for or suppress the utilization of vitamin B.¹¹ Improvement followed supplementary vitamin therapy.

Four patients who received estrogens for more than one year had polydipsia and polyuria. Two of these who drank large quantities of fluid a day demonstrated positive tests for diabetes insipidus. Although this disease may possibly be caused by metastases, there was no evidence of this in two patients at autopsy. It can be postulated that the prolonged administration of estrogen may alter the secretion of the posterior pituitary gland.

EFFECTS COMMON TO BOTH ANDROGENS AND ESTROGENS

Extracellular Fluid Retention—It has been demonstrated that androgens and estrogens produce a decreased excretion and an increased retention of sodium, with a corresponding increase in extracellular fluids.¹² Short-term pilot studies with radioactive sodium in a number of patients revealed an increase in sodium space.

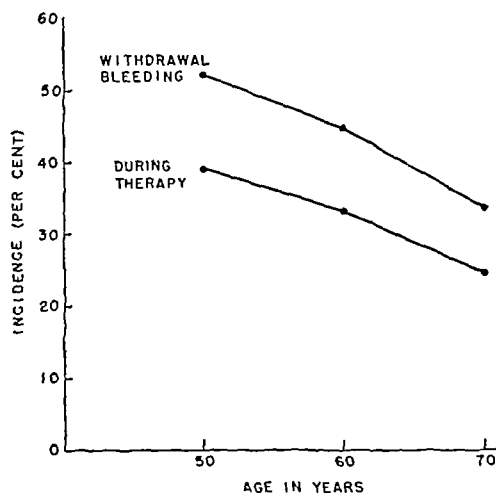


Fig 7—Incidence of uterine bleeding with respect to age during intensive estrogen therapy and after withdrawal of the hormone

Early in the course of estrogen or androgen therapy, mild edema, which subsided spontaneously, developed in many patients. Prolonged hormone therapy produced no increase in the incidence of edema, however, a greater incidence of edema was noted in older women, possibly because the cardiovascular system of such patients is less able to cope with the burden of excessive retention of fluid (fig 8). In the patients treated with massive doses of testosterone, edema of the legs was noted in about one sixth of the cases. Prolonged estrogen therapy produced peripheral edema in one third of the patients.

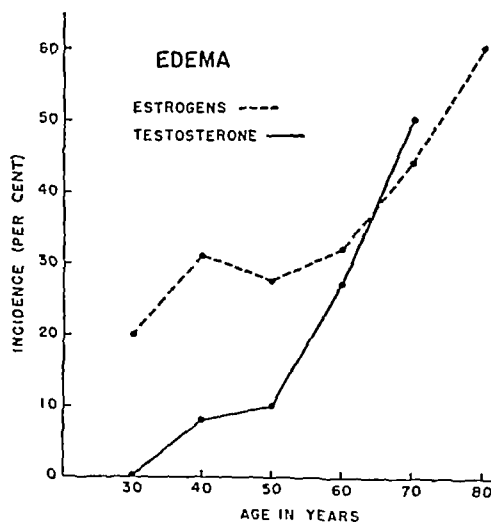


Fig 8—Incidence of edema during intensive hormone therapy in women with advanced carcinoma of the breast

The degree varied from minimal late afternoon swelling to constant edema of the entire legs. Many patients undoubtedly had retention of fluid that could not be detected on clinical examination, because weight gains of 5 to 10 lb (2.3 to 4.5 kg) were recorded without gross evidence of edema. Discontinuance of the hormone in a number of patients of this group was usually followed by an obvious diuresis and rapid decrease in weight. These patients did not manifest any renal disease before therapy, as judged by routine urinalyses.

or serum nonprotein nitrogen determinations Existing lymphedema of the arm on the affected side was frequently exaggerated during steroid therapy

In 17 patients (9%) of those receiving estrogen therapy, fluid retention led to congestive cardiac failure or exaggerated an existing mild decompensation Five patients who had edema during estrogen therapy died of congestive heart failure at home, according to the family physicians, however, the investigators had not observed any evidence of this condition a short time previously The breast disease did not appear sufficiently far advanced to cause death Thus, the incidence of death apparently resulting from congestive failure was recorded as 2.6% Four cases of acute congestive failure have been reported in men treated with diethylstilbestrol for advanced cancer of the prostate gland Three of these patients had possible preexisting myocardial damage¹⁰ Testosterone led to congestive failure in only one member of the present series

Thrombophlebitis of the lower extremities, which was often unilateral, was prone to occur in women in whom edema

TABLE 3—Comparative Study of the Incidence of Side Effects of Synthetic Estrogens

	Diethyl stil- bestrol	Conju- gated Estro- gonic Sub- stances	Dimethyl Ether of Diethyl stil- bestrol	Ethinyl Estra- diol	Dien- estrol	Mestil- bol
Dose mg per day	5 to 400	5 to 30	5 to 30	3 to 5	5 to 30	5 to 30
No of persons treated	178	23	22	22	14	14
	Incidence of Side-Effects %					
Anorexia	55.6	43	27	71	58	71
Nausea	56	43	31.8	71	57	71
Vomiting	34.0	23.8	13.6	25	28.5	35.7
Abdominal distress	5	5.6	5	5	14	0
Diarrhea	2.8	11	0	21	0	0
Dizziness	4.5	0	0	0	0	7.7
Headache	8.9	5.9	5.0	0	7.7	0
Drowsiness	7.0	5.0	0	16.7	8	7.7
Libido increase	1.0	0	7.7	0	0	0
Nipple pigmentation	84.7	35.7	78.9	86.7	63.0	83
Areolar pigmentation	78	23	88.9	87.5	70	91.6
Axillary pigmentation	33.0	0	54.5	40	33	50
Scar pigmentation	18.7	0	0	22	0	0
Skin rash	0.9	0	0	7	0	0
Itching	3.9	0	0	0	10	10
Breast engorgement	17	20.7	5.0	25	30	20
Breast tenderness	15	20.7	0	16.7	20	8
Uterine bleeding	34.8	37.5	10.8	6.7	18	35.7
Withdrawal bleeding	41.0	44	33	40	0	33
Urinary symptoms	29	7	7.7	40	42.8	11
Amenorrhea	87.5					
Edema of legs	33	35	26	44	0	28.5
Congestive failure	10	5.9	5	0	0	7
Congestive failure (deaths)		5.9				7

developed It is our impression that this complication happened more frequently than could be expected by chance Edema, superimposed on poor peripheral circulation, may be an important factor influencing the start of this complication

Although fluid retention is a serious sequela of androgenic and estrogenic therapy, employment of specific measures will usually control or minimize this complication and in many instances enable continuance of hormone therapy As a rule, the use of ammonium chloride and a low salt diet are sufficient If these measures are inadequate, mercurial diuretics can usually correct the situation Preexisting cardiac failure should be treated before the initiation of hormone therapy In anticipation of possible fluid retention from steroids, it was our policy to include ammonium chloride and a low sodium intake as a part of the therapeutic regimen in elderly patients or those with known cardiac disease

Hypercalcemia—Hypercalcemia may occur with either androgens or estrogens during treatment of advanced breast cancer with osseous involvement¹³ On the basis of blood studies, it was determined that hypercalcemia occurs spontaneously in about 12% of breast cancer patients with osseous metastases^{12c} The number of cases induced by steroid hormones probably is less, but the syndrome is more serious and may be

fatal Spontaneous hypercalcemia may be corrected by steroids, so it does not contraindicate therapy, providing the patient is carefully observed, however, steroid hormones may also induce the syndrome in patients in whom there was no detectable evidence prior to the initiation of therapy Hypercalcemia was observed in seven (9.6%) of the patients receiving androgenic hormones Three of these died, apparently as a result of this complication Hypercalcemia from estrogen therapy was rare in this series, occurring in only two of the total number of patients Manifestations of hypercalcemia were anorexia, nausea, vomiting, apathy, weakness, drowsiness sometimes merging into disorientation, stupor, or coma, vascular collapse, and, in some instances, death Although the initial symptoms may be subtle, the syndrome must be suspected in any patient who exhibits these mild symptoms Serum calcium determinations should be performed at the beginning of and during therapy, especially if suggestive symptoms arise In addition, the more rapid and simpler estimation of urinary calcium is often informative Ideally, both assays are desirable Clinical and laboratory evidence of uremia was present in four of the patients with hypercalcemia who were receiving testosterone The hypercalciuria apparently produces damage of the renal tubules, with resultant renal insufficiency Postmortem examination may reveal deposition of calcium in the tubules as well as in other tissues¹⁴

The syndrome of hypercalcemia may be corrected, in many instances, by cessation of hormonal therapy, low calcium diet, and infusions of sodium chloride, glucose, and sodium citrate. A 25% solution of sodium citrate can be administered in an amount of 250 cc intravenously every four hours until improvement occurs Sodium citrate temporarily reduces the amount of ionized calcium in the blood caused by the formation of a soluble, nonionized calcium citrate complex¹⁵ However, we believe that correcting the abnormal electrolytic pattern in these patients is most important in treating this serious complication When drug induced hypercalcemia is corrected, further steroid therapy may be tried cautiously The syndrome may recur, but some patients encountered no further difficulty and greatly benefited from the therapy

Temporary hypercalcemia might have been present in patients noting drowsiness and nausea at the start of therapy, but it was undetected The incidence of death resulting from hypercalcemia might possibly be reduced by more frequent serum calcium and nonprotein nitrogen determinations and close observation of the patient for early detection of this complication

Amenorrhea—Cessation of menstruation is common in women without cancer during treatment with high doses of androgens and estrogens^{5a} Such therapy may produce permanent amenorrhea in women passing through the menopause Amenorrhea also occurs in menstruating women with disseminated breast cancer who are receiving androgens or estrogens Of the premenopausal women receiving large doses of estrogenic hormones, 87.5% experienced amenorrhea during this therapy The hormone-produced amenorrhea can be attributed to suppression of gonadotropic activity, especially since patients resume menstruation after cessation of therapy¹⁶

COMPARISON OF NATURAL AND SYNTHETIC ESTROGENS

During the investigation of estrogen therapy in advanced breast carcinoma, both naturally derived and synthetic preparations were employed, in an attempt to evaluate the effectiveness of each The commonly employed compounds, the average dosages, and the incidence of local and systemic reactions of cases in which synthetic estrogens were used are recorded in table 3 Since these data were compiled, the number of patients treated with compounds other than diethylstilbestrol has substantially increased, however, the relative incidence of reactions has not been altered significantly At present, the data are insufficient to determine whether any single agent uniformly produces fewer reactions than any other Further studies with various dosages are necessary to determine the relative incidence of side-effects at each level No attempt has been made in this report to correlate the various compounds or the systemic reactions with the response of the tumors The combined use of estrogens and androgens has been tried in a number of patients, but the data are too

few for critical evaluation, especially in respect to effects that are common to both groups of compounds. It appears, however, that more specific sex changes, usually attributed to typical estrogens and androgens, may be minimized with such a combination.

ESTROGENS IN MEN

Large doses of estrogenic hormones have been employed in the treatment of advanced breast cancer in men. Since the series is small, no statistical analysis was attempted. The reactions, which appear similar to those noted in the treatment of prostatic carcinoma, include anorexia, nausea, vomiting, nipple and areolar pigmentation, tenderness and hyperplasia of the uninvolved breast tissue, extracellular fluid retention, and loss of libido; hypercalcemia has not been observed.

SUMMARY AND CONCLUSIONS

Systemic and local reactions were studied in patients with breast cancer receiving intensive sex hormone therapy. A large variety of reactions occurred, which were not specifically related to the action of the hormone on the tumor but could be attributed to inherent qualities of the compounds. This was particularly true when larger dosages were used; they apparently caused a higher incidence of reactions than doses employed in other syndromes. Moreover, at these dose levels, reactions occurred that are not universally recognized.

Further study of the reactions discussed in this report may disclose additional information as to the physiological action of the sex hormones and an explanation of their mechanisms in the treatment of advanced breast carcinoma. Tabulation of the reactions may also contribute to an evaluation of sex steroid hormone therapy in general.

COMMITTEE ON COSMETICS

The following products have been accepted as conforming to the Rules of the Committee on Cosmetics. A copy of the rules on which the Committee bases its action will be sent on application.

R T STORMONT, MD, Secretary

Athea Laboratories, Inc.

ATHEA HAND LOTION—A white emulsion composed of lanolin, petrolatum, a vegetable oil, stearic acid, hexadecanol, magnesium stearate, propylene glycol, cetyl alcohol, and perfume intended to soften and protect the skin. (Bottle 4 and 8 oz. and 1 gal.)

Cosmetic Laboratories, Inc.

BODY LO—A white emulsion composed of liquid petrolatum, polyol esters, a preservative, perfume, color, and water intended to soften and protect the skin. (Bottle ¼ 3 and 8 fl. oz.)

HAND-LO—A pink emulsion composed of triethanolamine, colloidal clay, fatty acids, and esters, petrolatum, lanolin, alcohol, a preservative, perfume, color, and water intended to soften and protect the skin. (Bottle ¼ ½ 1 2 3 and 8 fl. oz.)

HOMOGENIZED SKIN CLEANSER—A pale yellow heavy cream composed of lanolin, a polyol ester, petrolatum, a wax, magnesium sulfate, a preservative, perfume, and water intended to cleanse the skin. (Jar 1½ 3¼ 8½ and 16 oz.)

PROTECTION (OILY, NORMAL AND DRY)—A white emulsion composed of vegetable gums, petrolatum, waxes, soap, borates, benzoic acid, propylene glycol, and its stearate, a preservative, perfume, color, and water. The ingredients are the same in each of the three forms. The ratio of the ingredients and the perfume content differs in each type. They are intended to keep the skin soft and smooth and to serve as a powder base. (Bottle 2 3 and 8 fl. oz.)

Luzier's Inc.

LUZIER'S LIQUID MAKE UP BASE—A pigmented liquid containing glycerin, a fatty acid, and its glyceryl and polyethylene glycol esters, an alcohol, a petrolatum, triethanolamine, a surface active agent, a preservative, water, and colors intended to serve as a make-up to provide color to the skin and a smooth appearance. (Bottle 1 fl. oz.)

Pharma-Craft Corporation

FRESH CREAM DEODORANT—A white cream composed of basic aluminum formate, aluminum chloride, urea, petrolatum, glycerin, a fatty acid, and its glyceryl ester, a suspending agent, perfume, and water intended to temporarily retard the flow of perspiration. (Jar 0.16 0.42 0.75 and 1.20 oz.)

HEED DEODORANT SPRAY—A clear, colorless solution composed of an aluminum chlorhydroxide complex, aluminum chloride, urea, perfume, and water intended to temporarily retard the flow of perspiration. (Plastic Bottle 1.20 fl. oz.)

SPRITE SPRAY DEODORANT—A clear, colorless solution composed of an aluminum chlorhydroxide complex, aluminum chloride, urea, alcohol, perfume, and water intended to temporarily retard the flow of perspiration. (Plastic Bottle 1.5 fl. oz.)

Revlon Products Corporation

AQUAMARINE HAND CREAM—An aquamarine-colored cream emulsion composed of lecithin, stearic acid, a glycol, glycol ethers, and esters, inorganic alkali, a preservative, perfume, color, and water intended to soften and protect the skin. (Jar ¾ oz. and 1 lb.)

AQUAMARINE LOTION DEODORANT—An aquamarine cream emulsion composed of polyoxyethylene ethers and esters, cetyl alcohol, cholesterol, absorption bases, fatty acid amide derivative, aluminum chlorhydrate, a buffer, a preservative, perfume, color, and water intended to temporarily retard the flow of perspiration. (Bottle 2¾ fl. oz.)

AQUAMARINE MIST—An amber-colored solution of essential oils, alcohol, color, and water intended to provide a pleasing scent. (Bottle 3.12 and 7 fl. oz.)

CAKE ROUGE—A pigmented cake powder composed of a mixture of talc, glycerin, tragacanth, covering agents, a preservative, perfume, and colors intended to enhance the color of the cheeks. (Cake 7.8 gm.)

CHEEKSTICK—A pigmented waxy solid in stick form composed of petrolatum, lanolin, a wax, a covering agent, a preservative, perfume, and colors intended to enhance the color of the cheeks. (Stick 2.6 gm.)

CUTICLE OIL—A rose-colored solution composed of petrolatum, color, and perfume intended to soften the cuticle. (Bottle 1 and 4 fl. oz.)

CUTICLE REMOVER—An off white solution of a polyethoxy ether, a substituted ammonium hydroxide, propylene glycol, a preservative, a color, and water intended to soften the cuticle and permit its removal by gentle friction. (Bottle 1.4 and 16 fl. oz.)

DESTINA MAKE UP REMOVER—A clear green solution composed of a polyoxyethylene ester, alcohol, glycerin, perfume, colors, and water intended to facilitate the removal of make-up. (Bottle 4 fl. oz. and qt.)

EYEBROW PENCIL—A pigmented waxy solid composed of fatty acids, lanolin, waxes, a vegetable oil, glycerides, a resin, and colors intended to enhance the color of the eyebrows. (Pencil 1½ in. by 0.115 to 0.120 in.)

HAND COLOGNE—A clear pink solution composed of alcohol, polyethylene glycols, perfume, colors, and water intended to provide a pleasing scent. (Bottle 4 and 16 oz.)

INDELIBLE CREAM LIPSTICK—A waxy solid stick composed of waxes, glycol, and a glycol ester, vegetable oils, a cholesterol, absorption base, a covering agent, a preservative, perfume, and colors intended to enhance the color of the lips. (Tube 4.5 gm.)

NAIL CREAM—A pink cream composed of lanolin, petrolatum, a sorbitan ester, a wax, a covering agent, perfume, color, and water intended to soften the cuticle. (Jar ½ and 2 oz.)

NIGHT HAND CREAM—A thick pink cream composed of petrolatum, lanolin, a cholesterol, absorption base, a preservative, perfume, colors, and water intended to soften and protect the skin. (Jar 2¼ oz.)

PASTE POLISH—A pink cream composed of a wax, a phthalate ester, lecithin, covering agents, perfume, and color intended to add gloss to the nails. (Jar 0.95 oz.)

PINK LACTOL—A thick pink cream lotion composed of a fatty acid and its ester, alcohols, triethanolamine, lanolin, preservatives, perfume, colors, and water intended to soften and protect the skin. (Bottle 32 and 128 fl. oz.)

TOUCH AND GLOW—A pigmented liquid composed of stearic acid and its glycol ester, cholesterol, bases, lecithin, covering and thickening agents, triethanolamine, a glycol, preservatives, perfume, colors, and water intended to serve as make-up to provide color to the skin and a smooth appearance. (Bottle 1 and 2 fl. oz.)

Shepard Laboratories

SHEPARD'S CREAM LOTION—A white emulsion composed of glycerin, a fatty acid, and its glyceryl ester, triethanolamine, cetyl alcohol, preservatives, propylene glycol, carbital, alcohol, sesame oil, perfume, and water intended to soften and protect the skin. (Bottle 8 fl. oz.)

SHEPARD'S COLD CREAM—A white heavy cream composed of waxes, petrolatum, a glyceryl ester, cetyl alcohol, a preservative, sodium borate, perfume, and water intended to cleanse the skin. (Jar 3½ oz.)

SHEPARD'S DRY SKIN CREAM—A yellow cream composed of a wax, lanolin, petrolatum, and perfume intended to relieve skin dryness. (Jar 1½ oz.)

Toni Company

TONI HOME PERMANENT (VERY GENTLE, REGULAR AND SUPER)—A creamy solution consisting of ammonium thioglycolate, free ammonia, ammonium salts, an emollient, creaming agent, a surface active agent, perfume, color, and water. This is provided in three strengths, very gentle, regular, and super, intended for easy to wave, normal, and hard-to-wave hair, respectively. This is a cold waving solution intended to be used with a chemical neutralizer. (Waving Lotion 4 fl. oz.)

FROM HOME PERMANENT (VERY GENTLE, REGULAR AND SUPER)—A creamy solution consisting of ammonium thioglycolate, free ammonia, ammonium salts, an emollient, creaming agent, a surface active agent, perfume, color, and water. This is provided in three strengths, very gentle, regular, and super, intended for easy-to-wave, normal, and hard-to-wave hair, respectively. This is a cold waving solution intended to be used without a chemical neutralizer. (Waving Lotion 4 fl. oz.)

THE JOURNAL

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WATCH IT, *LIFE*

Physicians read with amazement and resentment the recent editorial, "Watch It, Doc," which appeared in the June 22, 1953, issue of *Life* magazine

The editorial condemned the action of the House of Delegates of the American Medical Association for adopting a resolution presented by delegates of the Indiana State Medical Association pertaining to the care of crippled children

It is unfortunate that *Life's* editors apparently took neither the time nor the trouble to investigate the facts before sounding off on a subject so close to the hearts of millions of its readers

Indiana was the first state to tell Washington to keep its general welfare money, pledging to carry on its own program without a 20 million dollar federal handout. This was brought about by the action of the state legislature in passing an antisecrecy clause to reduce the rapidly rising cost of welfare in Indiana by opening the reports of the state's department of welfare to public view. This movement spread rapidly throughout the country, and it took an act of Congress to protect the various states from reprisals by the Federal Security Agency, which was then headed by Oscar Ewing

The editorial gave a distorted picture not only of the position of the A M A House of Delegates but also of the actions of the New York County Medical Society concerning the extension of medical care to a housing project proposed by the New York State Housing Commissioner. Judging from the reference to the medical care housing controversy, *Life's* writer must have been content to use only newspaper clippings and secondhand sources of information

Life has violated one of the cardinal principles of good journalism—the accurate reporting of facts. The New York County Medical Society said in a letter to *Life's* chief editorial writer

"*Life* repeated—with damaging effect—a quotation attributed to our chairman of the Committee of Medical Economics, which first appeared in the *New York Times* on April 7, 1953, about giving the patients 'breakfast in bed.' This was categorically denied to the *New York Times* on the same date but your writer, using only newspaper clips and not coming to the Society for his information, repeated the libelous phraseology and compounded it by going on to comment about Marie Antoinette and 'let them eat cake.'"

If *Life* had taken the time New York and other newspapers did to check the facts behind the crippled children's resolution, an entirely different picture would have been unfolded. The facts underlying introduction of the resolution before the A M A House of Delegates and the subsequent action by the House are in keeping with the demand of the public for a sensible form of government administration of various assistance programs. The resolution pertained to a regulation adopted by the Federal Security Agency in 1944 under Paul V. McNutt, Federal Security Agency Administrator, which reads

"Section 200.9 of Part 12-4 of Regulations for Maternal and Child Health and Crippled Children's Program, entitled 'Crippled Children's Programs Diagnostic Services'

"State plans for Crippled Children's Services shall provide that the diagnostic services under the plan will be made available within the area served by each diagnostic center to any child (a) without charge, (b) without restriction or requirement as to the economic status of such child's family or relatives or their legal residence, and (c) without any requirement for the referral of such child by any individual or agency."

Before a state can obtain federal approval for its crippled children's program it must adopt this regulation or at least the sense of it. States are compelled to renew the crippled children's pledge set forth in the Federal Security Agency regulation every two years. With a change of administration in Indiana, a new welfare board was confronted with accepting the provisions by July 1, 1953, or failing to have the welfare program approved under the law. Eventually, Indiana's welfare board, under coercion, reluctantly approved the regulation for a two year period, but lodged a vigorous protest with Washington, saying the approval was being given under protest.

Life never touched on this background, nor does it appear to have consulted the Indiana Department of Public Welfare, which recently reported that the state's crippled children's program was costing the taxpayers almost nothing—thanks to a long-time arrangement with Indiana physicians who contribute their professional services. To *Life*, this apparently means nothing. Had the magazine checked its facts, it would have learned that Indiana's director of the crippled children's program recently praised physicians of that state for willingly treating deserving crippled children on other than a fee-for-service basis.

Life could have learned, too, if it had taken the time, that Indiana taxpayers are paying the physicians in the program an honorarium averaging only \$40 per month or \$480 per year for all professional services to crippled children in the state. For this amount, which totals less than \$10,000 per year, the children receive professional services that would cost more than \$100,000 per year on a fee-for-service basis, according to the state's welfare department.

In reporting for the year 1952, the Indiana Department of Public Welfare's figures show that during the calendar years, Indiana physicians treated 2,844 children in clinic and made a total of 9,354 visits. In addition, 655 children received a total of 15,857 days of

corrective hospital care by physicians, or an average of 24 days per child, for which the physicians received no extra pay for visits or services. Another 2,517 children received auxiliary orthopedic and therapy services in their home communities as a follow-up precaution to make sure that each child was being properly rehabilitated.

Such services to crippled children are not given in Indiana alone. Every Shriner hospital ward, orthopedic hospital, county hospital, and private hospital can certify to similar charitable services by physicians in every state in the union. It has never been the intent of the medical profession to remove the availability of medical care from those who are in need of care and unable to pay.

In introducing the resolution to the A M A House of Delegates, Indiana physicians believed honestly and sincerely that whenever any law or regulation provides free service for all, regardless of economic status, and whenever the responsibility of control is removed from a state or local agency charged with the responsibility of administering and paying for the services performed, it definitely is a socialistic program.

It is significant that *Life* chose to ignore all the other resolutions acted on by the House of Delegates—many of them dealing with constructive and positive aspects of the American Medical Association's program—and elected to concentrate on one to which wide interpretation and speculation could be given. As Dr. Louis H. Bauer said in a letter to *Life*: "You took one resolution adopted by the House of Delegates and distorted the action of the House." He charged the magazine with exhibiting "either woeful ignorance or an unwillingness to accept fact."

Magazines and newspapers have ethics the same as the medical profession. In reporting on the A M A action, *Life* threw the fundamental canons of journalism—sincerity, truthfulness, and accuracy—out the window. In doing so, *Life* betrayed not only the physicians of this country but also its big family of readers. Good faith with the reader is a paramount principle. By every consideration of good faith, a magazine is constrained to be truthful. It is not to be excused for lack of thoroughness or accuracy within its control. So, in reply to *Life's* "Watch It, Doc," one can say "Watch It, *Life*."

REDUCTION OF MOTOR VEHICLE DEATHS AN INDIVIDUAL RESPONSIBILITY

A total of 262 persons lost their lives in motor vehicle accidents in the United States during the Fourth of July weekend this year. Most of these lives were lost needlessly. It is ironic that with the millions of dollars and thousands of man-hours spent for medical research to prolong human life each year, almost a million persons sacrifice their lives and limbs through carelessness on the highways. Although the death rate from disease has decreased during the last decade, flagrant violations of highway safety rules have resulted in a constantly increasing death and injury rate from motor vehicle accidents.

During the first five months of 1953, 14,230 persons were killed in motor vehicle accidents in the United States, a 4% increase over the 13,740 persons killed during the same period of time in 1952. According to "Accident Facts," published yearly by the National Safety Council, in 1952 motor vehicle accidents in the nation resulted in 38,000 deaths, caused injuries to 1,350,000 persons, and cost \$3,750,000,000. There were 33,000 fatal accidents, 900,000 nonfatal injury accidents, 3,400,000 accidents causing property damage of \$25 or more, and 5,200,000 accidents causing property damage of less than \$25.

Seven out of 10 motor vehicle deaths in 1952 occurred in rural accidents, and more than half of all deaths occurred at night. Nearly one-fourth of the fatally injured were pedestrians. Collisions between motor vehicles were mostly head-on and sideswipe crashes. The principal non-collision accident was running off the roadway at curves.

Excessive speed was the most important driver violation. Nationally, 28% of the drivers in fatal accidents were driving too fast for traffic, weather, and/or road conditions, even though they may not have been exceeding a legal speed limit. In urban areas, right of way violations were second in importance, in rural areas, failing to keep right of the center line was second.

In 23 out of 100 fatal accidents, a driver or a pedestrian had been drinking, 10 out of 100 drivers or pedestrians had some bodily defect. Adverse weather was reported in one out of four fatal accidents, while 6% of vehicles involved in fatal accidents had one or more unsafe conditions, in nearly one out of eight fatal accidents, the driver's vision was obscured. Two out of five fatal accidents occurred on Saturday and Sunday.

Reduction of the ever-increasing motor vehicle death rate is everyone's responsibility. Most motor vehicle accidents are avoidable. The person behind the wheel of the automobile is responsible not only to himself but to all others for observing all speed laws and traffic signs, for maintaining his vehicle in proper working order, and for making certain that he is in proper physical and mental condition to operate the vehicle. He must observe not only the road and persons directly ahead of him, but he must be cognizant of traffic and pedestrians on either side of and behind him. Pedestrians also are individually responsible for reducing the death rate from motor vehicle accidents. They must observe all safety rules and regulations designed for their protection.

Physicians have a unique position in the prevention of motor vehicle accidents. They are able to work with individuals and organizations in an advisory capacity to ascertain when a person should or should not drive an automobile. If a physician has a patient who, for one reason or another, should not operate a motor vehicle, it is his duty to proffer such advice. A physician should not wait until a patient asks him if he can drive an automobile, the majority of persons will not seek such counsel. Such advice may save a life—and the life may be that of someone dear to the physician or the patient.

Certain conditions are contraindications for operating a motor vehicle, and physicians are best informed about them. Individual evaluation as to whether or not a person should drive an automobile should be made of persons

who have just had certain types of physical examinations or who have just received an anesthetic, of persons taking certain drugs such as antihistamines and sedatives, of persons with mental instability, uncontrolled diabetes, and certain forms of epilepsy, and of persons with heart disease or severe hypertension

Only by assumption of such individual responsibility can the death rate from motor vehicle accidents be reduced. Such accidents are unnecessary, they can and must be abated. In such a program physicians everywhere can be and should be helpful.

RELIEF FROM RAGWEED

The control of unwanted vegetation that harbors insects, blisters the skin, or produces undesirable types of pollen has been largely unsuccessful because of the lack of convenient and relatively inexpensive means of eradicating the offending plants. The widespread distribution of pollen-producing weeds such as various species of *Ambrosia* (ragweed) and skin-irritating vines, bushes, and shrubs of the genera of *Toxicodendron* (poison ivy, sumac, and oak) has been one of the principal obstacles to successful management of seasonal allergic rhinitis and contact dermatitis due to these causes. The introduction of selective herbicides has renewed interest in the control of these and other noxious plants.

The most widely heralded herbicide development of the past decade was the public announcement in 1944 of the growth-regulating properties of 2,4-dichlorophenoxyacetic acid (2,4-D). Weed control through growth regulation marked a new departure in herbicides and offered one of the most promising methods for eliminating noxious vegetation such as ragweed and plants of the genus *Toxicodendron*. Through health education and community organization the removal of these plants in urban and other frequented areas is now both possible and practical.

Ragweed is among the more sensitive of common weeds to 2,4-D, and pollen formation may be prevented by the use of spray and fog methods of dispersion. Destruction of ragweed should be undertaken in the early part of August so as to prevent the shedding of pollen and the dropping of seeds. 2,4-D is most effective on poison ivy around the end of the growing season, when large leaf surfaces are presented to the action of the chemical. A subsequent spraying a month later may be necessary for those plants surviving the initial treatment, however, use of the growth-regulant late in the season is not recommended, because the plants are dormant and largely unaffected by the material.

While 2,4-D is noncorrosive, nonexplosive, and noninflammable, caution must be taken when using it in the vicinity of cultivated plants. It attacks most broad leaf plants and is effective in exceedingly small amounts (10 ppm or less). Care must be taken to avoid drifting of

spray dust or fumes to flowering plants and fruit trees in the vicinity of spraying. Spray equipment must also be thoroughly decontaminated by washing with alkali or kerosene to remove residual chemical remaining after use of aqueous and oil sprays. Although sensitivity may be experienced by persons sensitive to compounds of the phenolic type, 2,4-D is comparatively harmless to animals and humans. It is not irritating to the skin except in concentrated forms, although the petroleum products used in certain formulations may be a cause of complaint. The dusts of 2,4-D can be irritating to the eyes and respiratory tract, and precautions against this should be undertaken during application.

Various formulations of 2,4-D are available under a variety of trade names. The label accompanying each product provides a statement of composition as well as complete instructions for application. The directions for use should be scrupulously followed if full benefit from the compound is to be obtained.

CANCER AS A CHRONIC DISEASE

Numerous case reports indicating the unpredictability of cancer as a disease are scattered throughout the medical literature. It has been observed that in any series of untreated cancer patients certain patients will have a much longer survival rate than the average, with some tumor types disappearing spontaneously and others seemingly growing in cycles, with periods of rapid growth alternating with stationary periods or actual recessions. Moreover, the phenomenon of delayed recurrence has been observed, wherein the tumor reappears years later either in the scar that has been produced by previous surgical intervention or in the surrounding area. Occasionally, metastatic cells appear dormant in lymph nodes and other vital structures of the body without ever producing symptoms, sometimes, however, rapid metastasis occurs throughout the body after a prolonged period of quiescence.

Morton and Morton¹ recently summarized their experiences with a group of 17 cases of cancer that originated in various organs, including the thyroid gland, neck, breast, orbit, parotid gland, and the kidney. These cases were unusual in that the patients had prolonged periods of active, useful life, even though the malignant disease had not been completely eradicated by surgical means. They point out that cancer may behave as a chronic disease for more than a quarter of a century, that there is wide variation in the individual resistance of patients to malignant growths, and that chronicity is not confined to any particular type of cancer. In view of the absence of a completely acceptable explanation for the prolonged survival rate of some patients afflicted with cancer, there is need to be cautious in estimating the survival rate of patients when offering a prognosis to patients and their families. Furthermore, prolonged and sometimes unexplainable periods of survival after diagnosis of cancer reveal why some so-called cancer treatments are accorded at least temporary support.

1 Morton J J Jr and Morton J H. Cancer as a Chronic Disease. *Ann Surg* 137: 683 (May) 1953.

ORGANIZATION SECTION

OPINION SURVEY AND INVENTORY OF MEDICAL CARE, PERSONNEL, AND FACILITIES IN MECKLENBURG COUNTY, NORTH CAROLINA

David G. Welton, M.D., Charlotte, N. C.

Early in 1951, a special study committee¹ was appointed by Dr. Monroe T. Gilmour, then president of the Mecklenburg County Medical Society, to determine the facts about medical care in Charlotte and Mecklenburg County, North Carolina. To make this community study comprehensive in scope, the society invited representatives of the dentists, nurses, Negro physicians and dentists, public health departments, and hospitals to participate. All responded. The public was represented by an outstanding civic leader who was director of public libraries within the county.

So far as known, the opinion survey portion of this study was the first of its type done in the South, it was also the only one done in the United States that included a significant Negro representation—of 29%—and that was conducted as part of an inventory of medical facilities. Five hundred residents, in a cross section sample, were personally interviewed.

PUBLIC OPINION FINDINGS

The highest praise for medical services was given to the availability of surgeons when 97% of those interviewed and who expressed an opinion said that they had no difficulty securing the services of surgeons. The availability of doctors was rated next, with 90% stating they had no difficulty securing services, availability of nurses next, with 88%, availability of dentists next, with 86%, and availability of hospitals next, with 85%.

Seventy-two per cent of those who expressed opinions said they thought doctors' charges were fair, this proportion was 5% less than of those who said nurses' charges were fair. Sixty-four per cent said surgeons' charges were fair, and an identical percentage said the same about dentists' charges. Drug bills and hospital bills scored lower. Sixty-one per cent with opinions said drug bills were fair, and 49% said hospital bills were fair.

When persons in Mecklenburg county, however, were asked 'Do you think it is proper to ask what the charges will be before engaging the services' of doctors, surgeons, dentists, drug stores, hospitals, and nurses, they replied 64% no for drug stores, 58% no for doctors, 34% no for dentists, 28% no for hospitals, and 20% no for surgeons and nurses.

Although 85% or more of those interviewed who expressed an opinion praised the availability of each one of the medical services, their percentages of favorable responses were much smaller when they were asked if they thought there is a shortage of medical personnel and facilities. Eighty-six per cent said there was a shortage of hospitals, and 70% said there was a shortage of nurses. Sixty per cent said there was a shortage of doctors, 44% said there was a shortage of dentists, 34% said there was a shortage of surgeons, and 15% said there was a shortage of drug stores. The survey showed that 80% of the families in the county have a family doctor.

President Mecklenburg County Medical Society

Mr. Lawrence Rember, Director of Field Service, Department of Public Relations, American Medical Association, assisted in preparing the section on public opinion findings and in condensing the original report.

1. Members of the Study Committee of the Mecklenburg County Medical Society were 1951 and 1952: Dr. David G. Welton, Chairman; Dr. William T. Raby, Vice Chairman; Dr. Andrew Taylor, Secretary; 1951: Dr. Gregg Watters, 1952: Dr. Addison Brenizer, Jr., Research; Dr. Ralph Bell, Physician Personnel; Dr. Z. Vance Kendrick, Charlotte Dental Society; Miss Ann Rhodes, District Nurses Association; Dr. M. B. Bethel, City and County Health Services; Dr. Rudolph M. Wyche, Negro Physicians and Dentists; Mr. Marshall Pickens, Hospital Facilities; and Mr. Hoyt Galvin, the Public. The Advisory Group were Drs. Hamilton McKay, V. L. Hart, Luther Kelly, H. L. Newton, Monroe T. Gilmour, ex-officio 1951, and E. R. Hipp, ex-officio 1952.

Sixty-seven per cent have a family dentist, 63% have a family drug store, and 43% have a family surgeon and a family hospital. Only 2% have a family nurse.

Eighty-five per cent with opinions said their family doctor makes house calls willingly. But only 61% of those interviewed knew about the Medical Emergency and Information Service operating in Charlotte that gives out medical information and obtains doctors for emergency calls.

Eighty per cent with opinions said they would like itemized statements from doctors. Thirty-seven per cent said they thought their doctor would charge more if he knew they had medical insurance.

A lack of information about doctors' overhead costs was revealed when those with opinions—and only 34% of those interviewed had them on this question—estimated that their doctor on the average pays only 14.2% of his income for professional and office expense. The national average for overhead for doctors is actually 41 cents out of every dollar taken in. The overhead estimate for dentists averaged 11.4%, whereas the national average is 45%. Only 29% of those interviewed ventured an opinion on the percentage of work time given by doctors to the care of charity patients. They estimated on the average 18.5% for physicians and surgeons. The 20% with opinions estimated 7.1% for dentists. Slightly more than half, 52% of those holding opinions, thought that doctors' charges have increased as much as food. The 1951 Consumers' Price Index and Price Indexes for Medical Care show instead that, while the fees of the general practitioner, surgeon, and specialist in large cities have gone up 45.2%, food prices have risen in these same cities 127.4% over the 1935-1939 average.

Seventy-one per cent of those interviewed said they carried hospitalization insurance. Eighty-five per cent of those with opinions said they thought that public tax funds should be used to pay for hospitalization of those unable to pay. Seventy-five per cent said they favored merging city and county health departments, but only 60% said they favored merging city and county governments. Only 53% of those interviewed had opinions about the merging of local health departments, and only 49% had opinions about merging of local governments.

THE AREA SURVEYED

Interviews were conducted in Charlotte, Davidson, Cornelius, Matthews, Huntersville, Pineville, and in rural Mecklenburg County late in 1951 and early in 1952. Charlotte is the largest city in the Carolinas, with a recorded population of 135,000. Sixty-five thousand additional persons reside in the rest of Mecklenburg County surrounding Charlotte, making a total county population of 200,000. Approximately 65% are native born white persons and 35% are Negroes, with less than 1% being foreign born.

The average per family income in Charlotte was \$5,500 in 1950. In the heart of the Piedmont region of the Carolinas, there are more than 650 textile mills within a 100 mile radius of Charlotte, which has served as the medical center for this area for more than 50 years.

There are 225 available physicians, 65% of whom are board-certified specialists. Dentists number 84, graduate nurses 792, and hospital beds, 1,032.

THE METHOD

Proportionate representation of high, middle and low income groups, and varied age, sex, racial, educational, occupational, urban, and rural groups was achieved in the sample. The interviewing was done by Mrs. Olga Porter, formerly of Charlotte, a trained interviewer, with experience on surveys for the University of North Carolina and numerous business organizations. Because the society did not have the facilities for properly tabulating and analyzing the survey findings, it appealed to the American Medical Association for assistance. As a result, Lawrence W. Rember, Director of Field Service

for the Department of Public Relations, came to Charlotte to consult with the society and to extract and to write the reports for release to the public. Keying and tabulating of the data was done under the direction of Dr. Frank Dickinson, head of the Bureau of Medical Economic Research of the A M A. Question by question, the results to the 27 statistical questions of the survey follow.

FAMILY MEDICAL RELATIONSHIPS

1 Do you have a family doctor?

Yes	80%
No	20

Only 43% of those interviewed said they had a family surgeon. Only 43% said that they had a family hospital, indicating that the majority of persons go where their doctor or surgeon recommends or where there is an available bed. Only 2% said they had a family nurse.

2 Do you have a family dentist?

Yes	87%
No	33

3 Do you have a family drug store?

Yes	63%
No	37

AVAILABILITY OF MEDICAL CARE

4 Do you have trouble securing the services of doctors?

Yes	9%
No	88
No answer	3

Of those who did express an opinion, 10% said they had trouble securing the services of a doctor and 90% said they did not. Of the 89% who expressed an opinion on securing the services of surgeons, 3% said they had trouble and 97% said they did not. Of the 94% who expressed an opinion on securing the services of hospitals, 15% said they had trouble and 85% said they did not. Of the 84% who expressed an opinion on securing the services of nurses, 12% said they had trouble and 88% said they did not.

5 Do you have trouble securing the services of dentists?

Yes	18%
No	83
No answer	4

Of those who did express an opinion, 14% said they had trouble securing the services of a dentist and 86% said they did not.

6 Do you have trouble securing the services of drug stores?

Yes	1%
No	99

QUANTITY OF MEDICAL CARE

7 Do you think there is a shortage of doctors?

Yes	53%
No	30
No answer	12

Of those who did express an opinion, 60% said they thought there was a shortage of doctors and 40% said they thought not. Of the 71% who expressed an opinion on whether or not there is a shortage of surgeons, 34% said they thought so and 66% said they thought not.

Of the 90% who expressed an opinion on whether or not there is a shortage of hospitals, 86% said they thought so and 14% said they thought not. Of the 74% who expressed an opinion on whether or not there is a shortage of nurses, 70% said they thought so and 30% said they thought not. The percentages of persons expressing a considerable belief that there is a shortage of doctors, hospitals, and nurses are in marked contrast to the answers given by respondents to parts of question 4, in which a high percentage said they had had no trouble securing these medical services.

North Carolina now has three four year medical schools, within another two years, a total of about 175 physicians will be graduated annually from these three schools. A newly established school of dentistry at the University of North Carolina will soon be graduating approximately 50 dentists each year.

8 Do you think there is a shortage of dentists?

Yes	80%
No	45
No answer	10

Of those who did express an opinion, 44% said they thought there was a shortage of dentists and 56% said they thought not.

9 Do you think there is a shortage of drug stores?

Yes	14%
No	81
No answer	5

Of those who did express an opinion, 15% said they thought there was a shortage of drug stores and 85% said they thought there was not.

ASKING CHARGES BEFORE ENGAGING SERVICES

10 Do you think it is proper to ask what the charges will be before engaging the services of doctors?

Yes	42%
No	58

Eighty per cent of those interviewed said that they thought it was proper to ask the surgeon what he would charge before engaging his services. The percentage was the same regarding nursing service, and 72% said the same thing about hospital services.

11 Do you think it is proper to ask what the charges will be before engaging the services of dentists?

Yes	66%
No	34

12 Do you think it is proper to ask what the charges will be before engaging the services of drug stores?

Yes	80%
No	64

FAIRNESS OF CHARGES

13 Do you think the charges that doctors make are fair?

Yes	65%
No	20
No answer	10

Of those who did express an opinion, 72% said they thought that doctors' charges were fair and 28% said they thought they were not. Of the 58% who expressed an opinion on the fairness of surgeons' charges, 64% said they thought the charges were fair and 36% said they thought not. Of the 80% who expressed an opinion on the fairness of hospital charges, 49% said they thought the charges were fair and 51% said they thought not. Of the 52% who expressed an opinion on the fairness of nurses' charges, 77% said they thought the charges were fair and 23% said they thought not.

14 Do you think that the charges which dentists make are fair?

Yes	50%
No	31
No answer	13

Of those who did express an opinion, 64% said they thought that dentists' charges were fair and 36% said they thought not.

15 Do you think the charges that drug stores make are fair?

Yes	54%
No	30
No answer	11

Of those who did express an opinion, 61% said they thought that drug stores' charges were fair and 39% said they thought not.

16 Do you think doctors' charges have increased as much as food costs?

Yes	43%
No	40
No answer	17

Of those who did express an opinion, 52% said they thought that doctors' charges have increased as much as food costs and 48% said they thought not. The actual increase over the 1935-1939 average is 45% for doctors' charges and 127% for food prices.

17 Do you think your doctor charges more when he knows you have medical insurance?

Yes	28%
No	48
No answer	24

Of those who did express an opinion, 37% said they thought that their doctor charges more when he knows they have insurance and 63% said they thought not

LOCAL GOVERNMENT PARTICIPATION

18 Do you think public tax funds should be used to pay for hospitalization for those unable to pay?

Yes	76%
No	13
No answer	11

Of those who did express an opinion, 85% said they thought public tax funds should be used to pay for hospitalization of the needy and 15% said they thought not

19 Do you favor merging city and county health departments?

Yes	40%
No	13
No answer	47

Of those who did express an opinion, 75% said they favored merging city and county health departments and 25% said they did not

20 Do you favor merging city and county governments?

Yes	29%
No	20
No answer	51

Of those who did express an opinion, 60% said they favored merging city and county governments and 40% said they did not. It is clear here that an education job needs to be done to inform more citizens about the advantages of such mergers. The significant finding here is that such a large percentage had no opinion at all.

INCOME OF DOCTORS

21 Would you like itemized statements from doctors?

Yes	72%
No	18
No answer	10

Of those who did express an opinion, 80% said they would like itemized statements from doctors and 20% said they would not.

22 What percentage of the full income would you estimate is paid for professional and office expense by your doctor? By your dentist?

	Doctor	Dentist
Public's estimate	14%	11%
Actual	41	45

The highest estimate of the 34% and 31% of persons, respectively, who expressed an opinion was 75% and the lowest estimate was 1% showing an extreme range of opinion and a considerable lack of information about doctors' and dentists' overhead costs.

23 What percentage of work time do you estimate is given to charity patients by doctors? By dentists?

Doctors	19%
Dentists	7

The highest estimate of the 29% expressing an opinion in regard to doctors was 60% and the lowest estimate was 0%. The highest estimate of the 20% expressing an opinion in regard to dentists was 40% and the lowest estimate was 0%.

HOSPITALIZATION INSURANCE

24 Do you carry hospitalization insurance?

Yes	71%
No	29

25 Do you carry Blue Cross?

Yes	84%
No	37

HOUSE CALLS

26 Does your family doctor make house calls willingly?

Yes	66%
No	12
No answer	22

Of those who did express an opinion, 85% said their family doctor makes house calls willingly and 15% said he did not.

27 Do you know about Medical Emergency and Information Service operating in Charlotte and Mecklenburg County?

Yes	61%
No	39

VERBATIM COMMENTS

In addition to the answers that were given to the 27 statistical questions, verbatim comments and criticisms were solicited from the residents of Mecklenburg County as to what they thought was wrong with their doctors, hospitals, dentists, and health departments. Residents of Mecklenburg were asked also to make suggestions for the improvement of medical care.

The five comment questions were so worded that they requested and encouraged the expression of criticism rather than praise, since the main purpose of the survey was to obtain suggestions for the improvement of medical care in Charlotte and Mecklenburg County and not laudations of its virtues. Among the comments, nevertheless, were many a commendation. Where the respondent volunteered a compliment, it, too, was recorded.

Less than 50% of the citizens who were interviewed had any kind of unfavorable criticism. Out of a total representative sample of 500 interviews, 49% expressed a criticism about hospitals, 46% about doctors, 20% about dentists, and 7% about the health department. The remainder of those interviewed apparently were satisfied with the medical care that they were receiving. At least they had no criticism to offer.

WHAT THEY SAID ABOUT DOCTORS

Criticism of doctors centered mostly around refusal to make house or night calls and high fees and then dropped sharply for the other complaints. Eighty-eight per cent of the doctor criticisms fell into the following 10 categories:

	No. of Criticisms
Refusal to make house or night calls	10a
Extreme or too high fees	46
Long waiting period and lack of definite appointments	24
Slow responses to house calls	22
Mercenary attitude	15
Too much specialization and not enough family doctors	14
Fees based on ability to pay or greater after 6 p m or midnight	13
Attitude too professional cold impersonal	12
Too hurried or too busy	12
Demand that patient come to hospital and too much telephone diagnosis	10

The various remaining criticisms about doctors received five or less mentions out of the total of 500 persons interviewed. Slightly more than one person out of two expressed no criticism of doctors.

ABOUT HOSPITALS, DENTISTS, AND HEALTH DEPARTMENTS

The main criticisms of hospitals were made in this descending order: need more hospitals and hospital space, not enough doctors, nurses, and general personnel, impersonal and hurried service, too mercenary an attitude, inefficient management and help, and unappetizing or insufficient food, too strict in visiting or other rules, lack of cleanliness, and slow emergency attention and admittance procedures. Not quite one out of every two persons expressed a criticism of hospitals.

The main criticisms about dentists were high fees and long waiting for appointments. Only one out of every five persons expressed criticism of dentists.

As for the city health department, many persons were unaware of its existence or activities. The 7% who did have complaints to offer scattered their criticisms over so many different categories that no one type of complaint was made.

by more than 4 persons out of 500 Only one out of every 14 persons expressed any criticism about the city health department

SUGGESTIONS FOR IMPROVING MEDICAL CARE

Although all of those interviewed were asked to make suggestions for the improvement of medical care, only 63% had a suggestion to offer Five hundred and five improvement suggestions were made by 315 persons

The gist of what they suggested was "more" more hospitals, more doctors, more nurses, more interns and residents, more clinics, and more of other things

Here is how they would improve medical care

	No of Sug- gestions
More hospital space more facilities or more hospitals	105
More doctors and family doctors	87
More house calls by doctors	74
More nurses and personnel	46
More immediate emergency care and less admittance red tape	21
Less mercenary attitude and lower rates	20
More personal doctor patient basis	19
Better and more considerate service for charity patients	18
More interns and resident doctors	13
Increased effort for adequate insurance	13
More free and low fee clinics	10
Less telephone diagnosis	8
Charge according to ability to pay	7
Shorten office waiting time	7
Less specialization	6
More doctors interns and facilities in hospitals at night	4

Ninety one per cent of the suggestions were made in these 16 categories The remaining 9% were divided among 33 other types of suggestions, none of which received more than three mentions and most less

INVENTORIES OF MEDICAL CARE

The public opinion survey comprised one of the six key phases of the fact finding survey that was conducted by the study committee in Charlotte and Mecklenburg County The other five phases included individual inventories of physicians, nurses, hospitals, dentists, and public health services, covering personnel and facility resources

Of the 205 physicians engaged in active private practice in Mecklenburg County, 152 answered part or all of the inventory questionnaire on physician personnel All percentages given are of those expressing an opinion The replies show that the vast majority of physicians, or 97%, usually answer night calls from their own patients when the illness or injury comes within their field of practice But the number of physicians is somewhat less, 80%, who will take night calls from new patients

The next question asked was "Considering 100% as your desired optimal load of medical practice, with due regard to adequate attention to the patient on the one hand, and to your own time and health—but not money—on the other hand, during the past six months what percentage of this load have you averaged?" (An overworked doctor might answer 125%, a newly established doctor 30%) At least 32 out of the 152 physicians replying would like to, and were able to, take on a quarter more or even double the amount of work that they were doing. They were mostly the younger, less well known men The 60% of the public who thought there was a shortage of doctors in Mecklenburg County and the 34% who thought there was a shortage of surgeons are not aware apparently that a number of younger doctors have entered practice in their county who could take care of considerably more patients

The great increase of physicians in Mecklenburg County following the end of World War II was evidenced by the 40% who replied that they had practiced in Charlotte five years or less at the time of the 1951 inventory Another 10% have been in practice less than 10 years

Slightly under 40% (381) were engaged in either general practice or internal medicine, the division was about half and half The remaining 62% practiced in the fields of general surgery, obstetrics and gynecology, pediatrics, urology, ophthalmology, orthopedics, ear, eye, nose and throat, radiology, dermatology, neurosurgery, pathology, neurology psychiatry, and proctology in that descending order from 9% to 1% Judging from the fields of practice reported, Mecklenburg County is "short" on general practitioners and "long" on board-certified specialists Many specialists do serve, even so, as "family" or "personal" physicians

That the great majority of the physicians in Mecklenburg County were willing to take care of charity patients was evidenced by the fact that 96% accept and treat patients unable to pay, and another 3% do so occasionally

Physicians were asked "Excluding pure charity, what percentage of your 1950 accounts did you collect?" In over half of the cases, the answers were an estimated amount rather than a recorded one Eighteen physicians collected over 90% of their accounts Ninety two physicians collected 75 to 90% of their accounts Twenty five physicians collected 48 to 74% of their accounts

The next question sought to determine the percentage of a doctor's patients coming from outside the county Forty-six physicians reported 5 to 8% Thirty four physicians reported 10 to 25% Thirty-two physicians reported 26 to 50% Twenty three physicians reported over 50% It is to be expected in a medical center that a significant amount of time would be spent by the medical profession in the care of out-of-county patients

The inventory of physicians' data indicates that there is no drastic shortage of physicians in the community The data reveals also that a great majority of the doctors in Mecklenburg County do their best to meet the demands made upon them The most acute need indicated by the inventory is for additional general practitioners, particularly more Negro physicians This, the physician's "side of the story," makes an interesting comparison with comments by the public

ALLIED INVENTORY FINDINGS

Lack of space and consideration for length rule out covering in detail the inventory findings for hospital, nurse, public health, and dental personnel and facilities in Mecklenburg County

The total of 1,032 general hospital beds and 161 bassinets available in Charlotte on March 1, 1952, exceeds the minimum of 45 beds per 1,000 population that the U S Public Health Service says a "base area," such as Charlotte, should have Three general hospitals for white persons reported 82 additional beds were under construction in 1952 The rate of bed occupancy in these three hospitals was 87% (The United States average was 74% that year)

The 394 graduate active nurses (nonfederal) per 100,000 population counted in the community study was more than double the national average of 188 in 1949 Nevertheless it is difficult in the city and county to obtain a private duty nurse on short notice, particularly for night duty It is estimated that there are at least 100 additional registered nurses in the county who are inactive

The department of health in Charlotte ranked second in expenditures from local sources, sixth in expenditures from all sources, and fourth in dollars and cents per capita in all public and private agencies Its \$3.14 per capita expenditure is considered very good The public health department of Mecklenburg County had a per capita expenditure of \$1.46 in 1950 Its 1950 budget was \$92,270 This contrasts with a \$421,362 budget for the Charlotte public health department From the over-all viewpoint, merger of the health departments of the city and of the county is desirable and should be accomplished without lowering any of the standards now maintained in the city

A dentist population ratio of 41 nonfederal dentists per 100,000 population in Mecklenburg County does not equal the national average of 53 dentists per 100,000 population in 1950 Five of the 49 answering dentists, however, are

doing only 30 to 70% of the amount of dental practice that they would like to do, and another 15 are doing only 75 to 95% of the optimal load they desire. The inventory showed that local dentists spend much less time caring for out-of-the-county patients than do the physicians.

THE STUDY COMMITTEE'S RECOMMENDATIONS

Based on the public opinion survey and inventory findings, the Study Committee of the Mecklenburg County Medical Society formulated these recommendations to the profession:

A In the Field of Professional Service

1. Be sure your fees are 'fair'. In order to avoid misunderstandings about financial matters, encourage discussion of major charges in advance (a) by displaying the A M A plaque entitled 'To All My Patients' in your waiting room or consultation room, and (b) by bringing up the subject yourself or, if you prefer, suggest that the patient discuss it with your (properly trained) secretary.

2. Improve the servicing of house calls, especially at night, both personally and by participation in the emergency and information service plan. When called by a patient whose complaint does not properly require your own services, contact a colleague yourself and arrange service.

3. Encourage more specialists to serve as family or personal physicians, at least to some extent (for example, as explained in point 2).

4. Improve practice procedures, such as (a) when too busy to take a new patient, refer him to a colleague, perhaps to a younger man who may not be too busy, (b) render itemized bills, and (c) maintain adequate office space and adequate well-trained personnel, so that you may render good service with a minimum of waiting time.

5. Encourage more physicians and dentists, particularly general practitioners, to come to the community. Negro members of these two professions are especially needed.

B In the Field of Public Health

1. Direct added efforts toward reducing the neonatal mortality.

2. Provide additional clinics for Negro children.

3. Promote a satisfactory merger of the city and county health departments.

C In the Field of Information for the Public

1. Encourage everyone to have a 'family doctor'.

2. Bring before the public, through various mediums, the facts about (a) actual operating expenses and overhead costs of physicians and dentists, (b) the cost of training physicians and dentists, and what is being done in our own state to produce more, (c) the relatively small increase in professional fees as compared with the increase in prices of food, clothing, and other basic requirements during the past 12 years, (d) why hospital costs are what they are, and (e) the advantages of a combined city and county health department.

CONCLUSION

Because most of the members of the study committee are engaged in private practice, this work had to be done in what "spare time" was available, which meant evenings not devoted to other medical meetings and Sunday afternoons. As a result, almost two years were required to obtain, assemble, tabulate, and analyze the data. As the work of the committee progressed, the findings were presented first to the county medical and dental societies and then released in unaltered form with their permission, to the local newspapers. By demonstrating our desire to bring to light any deficiencies in our field of service to the citizens of this community, we believe we have enhanced our relations with them. We believe that deficiencies such as these once known can best be remedied by efforts initiated at the local and county level. We now have a sound basis on which to formulate improvements that should be of value to the patients and to all professional personnel engaged in serving the medical needs of the community.

403 N. Tryon St.

STATEMENT BEFORE HOUSE COMMITTEE ON INCOME TAX DEDUCTION OF MEDICAL EXPENSES

Gentlemen, I am Dr. David B. Allman of Atlantic City, N. J., where I am engaged in the active practice of medicine. I am a member of the Board of Trustees of the American Medical Association and I am appearing here today (June 17, 1953) as a representative of that Association relative to the deduction of medical expenses for income tax purposes.

The Committee on Legislation of the American Medical Association has considered a number of bills introduced during the 81st, 82nd and 83rd Congresses which are designed, in general, to authorize the deduction of all, or a larger percentage of medical expenses, from gross income for income tax purposes. The effect of this legislation would be to reduce or remove the limitation on such deductions imposed by existing law. Certain of these bills would also redefine the term 'medical expenses' to include amounts paid as premiums for prepayment health insurance.

The principle involved in all of these measures has been actively approved by the Committee on Legislation and by the Board of Trustees of the American Medical Association. Although no attempt has been made to work out the details of the formula to be applied, we are of the opinion that a greater measure of relief should be provided in this way for those individuals who have suffered from the financial burden resulting from the expense of a serious, long-term illness.

Although, as previously stated, the Association is on record as supporting legislation of this type, it might be well to discuss certain misconceptions concerning the present cost of medical care. Taken as a whole, medical costs are not out of line with other normal living expenses. Statistics presented by the United States Department of Labor for the third quarter of 1952 reveal that living costs have increased 90.8% since 1935-1939, while medical costs have increased only 65.5% in the same period.

In addition, it should be noted that recent surveys indicate that only 3% of American families have medical bills over \$200 and that 80% have no medical debts of any kind. Despite this fact, it is realized that a serious long-term illness can be a financial catastrophe to almost any family. Thus for some time, several insurance companies have been experimenting in a relatively new form of insurance called, among other titles, 'medical disaster' or 'catastrophic' coverage. A few of the agencies established by medical associations are also underwriting this newer version of protection. Its purpose is to provide sound protection in those instances requiring long-term or high-cost treatment. These ventures are being undertaken with the knowledge and full support of the medical profession.

The provisions of the bills pending before this Committee which are designed to permit deductions from gross income for the cost of prepayment health insurance should act as an inducement for people to join medical and hospitalization plans. Although the growth of voluntary health insurance is unparalleled in comparison with other advances recorded in the recent history of insurance, there are still segments of the population that are not covered. Despite the fact that 90,000,000 Americans have some form of protection, both physicians and underwriters are reviewing the basic standards of insurance to seek ways and means of improving this coverage.

We believe that the enactment of legislation of this type will further encourage the improvement of existing plans, will extend coverage, and will help to eliminate or reduce the financial burdens which do exist as a result of illness. It will also encourage people to look after their own health rather than turn to the government for assistance. We are sincerely convinced that our present nongovernmental system of medicine not only provides the best care but that it is also the most economical. We are therefore in accord with any legislation designed to help preserve that system.

STATEMENT BEFORE HOUSE COMMITTEE ON REORGANIZATION OF DEPARTMENT OF DEFENSE

Gentlemen I am Dr David B Allman of Atlantic City, N J, where I am engaged in the active practice of medicine I am a member of the Board of Trustees of the American Medical Association and I am appearing here today (June 18, 1953) as a representative of that Association relative to Reorganization Plan No 6, 1953

Although all of the provisions of the proposed Plan to reorganize the Department of Defense are of interest and concern to physicians as individual citizens, the interest of the American Medical Association is confined to Section 3 of the Plan

This section would authorize the appointment of six additional Assistant Secretaries of Defense from civilian life by the President by and with the advice and consent of the Senate Although the specific duties of these Assistant Secretaries are not specified in the Reorganization Plan, it is assumed that the assignments suggested by the report of the Rockefeller Committee on the Department of Defense organization dated April 11, 1953, would be favorably considered

As you are well aware, it is the recommendation of the Rockefeller Committee that one of the proposed Assistant Secretaries be placed in charge of health and medical affairs with the responsibility for maintaining high health standards among the personnel of the Armed Forces and for providing and managing hospitals and other medical installations at the smallest possible cost in dollars and professional personnel "

On Feb 7, 1953, the Board of Trustees of the American Medical Association approved a recommendation of the Council on National Emergency Medical Service that a position as Assistant Secretary of Defense for Health and Medical Affairs be created by law The Association believes that creation of such a position would insure proper correlation of military and civilian medicine, especially in the matter of apportionment of essential, highly trained health personnel

Although it is impossible to date the inception of the interest of the American Medical Association in military medical affairs, I should like to call the attention of the Committee to the activities of the Association in this regard since the enactment of special draft legislation designed to procure physicians for the Armed Forces

In August, 1950 and again last month the medical profession, after careful and thoughtful consideration, supported the need for special draft legislation, notwithstanding its discriminatory character The Association, in its discussions with the Department of Defense and in its testimony before the various committees of the Congress, has clearly stated its desire to terminate such legislation at the earliest possible time We have consistently recommended strongly that physicians and dentists called to active duty in the armed forces under this law be used efficiently and, except in unusual circumstances, for care of military patients rather than nonmilitary personnel

However, since the original enactment of this legislation in 1950, nonmilitary medical activities have increased We have been advised by representatives of the Department of Defense that compulsory legislation of this type will be necessary for five additional years or, until 1958 It is understandable, therefore, that the medical profession is seriously concerned and desirous of discovering alternative methods for meeting the requirements of the Armed Forces for health personnel

The existence of this law, plus the continuing need for civilian medical participation in military planning and operations as they relate to medical and health services and to the assignment and utilization of medical and allied health personnel, we believe, necessitates competent high level civilian direction within the Department of Defense We are happy to note that in this regard the message of the President of the United States transmitting Reorganization Plan No 6 to the Congress states There must be a clear and unchallenged civilian responsibility in the Defense Establishment "

It is our belief that the incumbent of the position as Assistant Secretary for Health and Medical Affairs should advise the Secretary of Defense concerning the development of policies, procedures and programs dealing with the coordination of the medical and hospital services of the Armed Forces and the mobilization and utilization of health personnel

STATEMENT BEFORE HOUSE COMMITTEE ON INCOME TAX DEDUCTION OF EDUCATIONAL EXPENSES

Gentlemen I am Dr Walter B Martin of Norfolk, Va., where I am engaged in the active practice of medicine I am President Elect and a member of the Board of Trustees of the American Medical Association and I am appearing today (June 18, 1953) as a representative of that Association relative to the deduction of college and educational expenses for income tax purposes

The American Medical Association has not taken any position with respect to the deduction of all college and educational expenses for income tax purposes However, the Association is vitally interested in the deduction of postgraduate educational expenses Although the present tax laws permit such deductions for ordinary and necessary expenses in a trade or business, there is no express provision permitting professional persons to deduct the cost of securing additional education

In connection with postgraduate medical education, your Committee may be interested in the fact that there is a total of 784 postgraduate courses available at this time Of this number 418 are offered on a full time basis and 366 on a part-time schedule These courses, which are available in 37 states, the District of Columbia and Puerto Rico, cover 34 major areas in the field of clinical medicine and 9 basic science subjects

A total of 134 agencies offer postgraduate medical training including 43 medical schools, 35 special medical societies, 18 hospitals, 12 academies of general practice, 11 state medical societies, 6 graduate schools of medicine and 3 agencies representing boards of health, schools of public health and government departments respectively

These courses are designed to be of assistance to physicians in general practice as well as to specialists in increasing their medical proficiency as well as to prepare them for specialty board certificates

For a considerable number of years the House of Delegates and the Board of Trustees of the Association have expressed concern over a ruling by the Commissioner of Internal Revenue holding that expenses incurred by a physician in pursuing postgraduate medical education are personal in nature and therefore not deductible for federal income tax purposes It has been extremely difficult to understand the validity of such a ruling because of the fact that physicians have been permitted to deduct the costs of attending medical meetings, of subscriptions to scientific publications and of dues paid to medical societies

Some time ago the Board of Trustees authorized the employment of a Special Tax Counsel to pursue this matter on behalf of the Association In an unsuccessful effort to obtain a new ruling from the Bureau of Internal Revenue, it was learned that there was pending before the United States Tax Court a case in which a lawyer had been denied the right to deduct expenses incurred by him in attending postgraduate courses on taxes In view of the fact that the case involved was quite similar to the one in which the medical profession was interested in, the American Medical Association filed a brief as amicus curiae The tax held against the taxpayer and an appeal was made to the United States Court of Appeals On April 14 the United States Court of Appeals reversed the decision of the United States Tax Court holding, in effect, that expenses incurred by the attorney in taking a postgraduate course were deductible for income tax purposes

While it is the belief of the American Medical Association that this decision probably applies to the practicing physician who attends postgraduate courses which are similarly designed to refresh his medical knowledge and to keep him informed regarding recent medical developments, it is by no means clear that the Court's decision covers attendance at postgraduate courses which are designed to advance the physician into a new area of his profession For example, there is considerable doubt whether a general practitioner may deduct his expenses in attending a postgraduate course in order to specialize in surgery

Also, it is not clear just how far the Bureau of Internal Revenue or the courts will follow this decision. If it is interpreted liberally all business and professional men will be entitled to deduct expenses incurred in attending refresher courses providing that there is a demonstrable tie in with their official duties. It appears more likely, however, from the wording of the decision, that a deduction would be disallowed in cases in which the taxpayer fails to show that he was bound, either contractually or morally, to keep abreast of changes in his particular field, and that attendance at an institute or refresher course was the proper way to do it.

In view of these areas of doubt, it is the belief of the American Medical Association that the issue should be settled by new legislation rather than be left to administrative interpretation or judicial decision. We would strongly urge, therefore, that your committee give favorable consideration to an amendment to the existing law authorizing the deduction of postgraduate educational expenses for income tax purposes.

FEDERAL MEDICAL LEGISLATION

Withholding Health Insurance Premium for Federal Employees

Senator Carlson (R, Kans) in S 2191 would authorize the withholding from federal payrolls of subscription charges for voluntary prepayment hospital and medical care insurance programs, at the request of the employee. The withheld money would be paid by the federal agency to the respective voluntary prepayment plans selected by the employee. This measure is similar to H R 1590 by Congressman Miller of California, previously reported. However, the Miller bill would cover accident and life insurance as well as health and hospitalization insurance. This measure was referred to the Post Office and Civil Service Committee.

Care of Veterans in State Veterans' Homes

At the request of the American Legion, Congresswoman Rogers (R, Mass) would amend the present law to authorize, in H R 5892, a federal contribution of \$700 per annum per veteran cared for in a state or territorial veterans' home, but the federal contribution could not exceed half of the total cost per veteran. Eligible veterans are those "disabled by age, disease, or otherwise, and by reason of such disability incapable of earning a living, provided such disability was not incurred in service against the United States." The present law authorizes a federal contribution of \$500 annually until 1956 and \$300 thereafter. In the fiscal year ending June 30, 1952, the federal contribution under this program amounted to \$3,892,135.15. The bill was referred to the Veterans' Affairs Committee.

Medical and Hospital Care for Disabled Retired Veterans

Congresswoman Rogers (R, Mass) proposes in H R 5893 that "any person retired from active service in the Armed Forces of the United States, who is in need of medical or hospital care for an injury, disability, or disease incurred or aggravated in line of duty in such service and who would be eligible to receive disability compensation from the Veterans Administration if he were not receiving retired or retirement pay shall be entitled to receive such care from the Veterans Administration subject to the same limitations as such care is furnished to veterans who are in receipt of disability compensation from the Veterans Administration." Under the present law, a veteran receiving a disability pension from the Veterans Administration is entitled to hospitalization for a service-connected condition. However, a veteran receiving disability retirement pay from one of the armed forces in certain circumstances would have to renounce his military pay during the period of treatment and qualify for a VA pension. The proposed bill would amend the law to authorize

hospitalization for a service-connected condition without requiring the veteran to have one form of compensation replaced by another. This measure was introduced at the request of the American Legion to carry out a mandate of its last convention. This measure was referred to the Veterans' Affairs Committee.

Total Disability Insurance Benefits

Congressman Radwan (R, N Y) in H R 5917 would amend the Social Security Act to provide disability insurance benefits for totally disabled persons. Disability is defined as "(A) inability to engage in any substantially gainful activity by reason of any medically determinable physical or mental impairment, or (B) blindness." Who shall determine disability is not specified. The amendment was referred to the Ways and Means Committee.

Problems of the Aged

Congressman Campbell (D, Fla) in H R 309 would create a select committee to be composed of seven members of the House of Representatives to investigate (a) the status of older persons, (b) "the most effective utilization of our older population group," and (c) the basic problems in the fields of employment, health, education and community services of our older population group. The resolution is identical with H R 13 (Bolling), previously reported, and four other resolutions. It was referred to the Rules Committee.

STATE MEDICAL LEGISLATION

Connecticut

Bills Enacted.—H 993 has become Special Act No 239 of the Acts of 1953. It directs the governor to appoint a commission to make a study of the potentials of the aging residents of the state including a survey of the employment and security problems of persons who have attained the age of 65. S 722 has become public act no 244 of the acts of 1953. It requires physicians to report to the state department of health the name and address of each person known to him to be subject to recurrent attacks of epilepsy or to recurrent periods of unconsciousness uncontrolled by medical treatment.

Florida

Bills Enacted.—H 535 became law without approval June 15 1953. It authorizes the state board of osteopathic medical examiners to pass upon the standing and reputability of osteopathic schools and colleges and osteopathic hospitals. H 557 became law without approval May 21 1953. It provides that states attorneys or county solicitors may in their discretion have autopsies performed upon dead bodies found within the county either before interment or after whenever in their opinions such autopsies are necessary in order to ascertain whether death resulted from a criminal act or by the result of criminal negligence. H 1680 became law without approval June 15 1953. It authorizes the county commissioners in certain counties in the state to include in the annual budget an item for a full time local health unit and to contribute and pay from the general fund to the state treasury to the account of the state board of health a sum of money for the maintenance of a full-time local health unit. S 351 was approved June 12 1953. It provides for the licensing and regulation of nursing homes.

New Jersey

Bill Introduced.—A 664 to amend the medical practice act, proposes that any veteran who shall be more than 30 years of age of good moral character and a citizen of the United States and a resident of this state and who has or shall have completed a four year-course of study in a public high school a four year premedical course of study in a premedical college a four year course of study in and a degree of doctor of medicine from a medical college two years of service as an intern or resident physician in a hospital licensed in the state and who has successfully passed an examination given by a state board in another state in the subjects of anatomy physiology pathology chemistry and bacteriology and who is licensed to practice medicine and surgery in such state shall be entitled to a license to practice medicine and surgery in New Jersey.

Bill Enacted.—A 137 has become ch. 190 of the laws of 1953. It requires every physician to report to the office of the superintendent of state police within twenty four hours after determining that any person is suffering from the effect of the use of a narcotic drug taken for purposes other than the treatment of sickness or injury as prescribed or administered by a person duly authorized by law to treat sick and injured human beings.

Vermont

Bill Enacted.—S 10 was approved May 26 1953. It amends the law relating to medical examiners by providing that the state pathologists may appoint 25 medical examiners who shall be licensed doctors of medicine or osteopathy.

MEDICAL NEWS

ARKANSAS

State Medical Election—At the annual meeting in Little Rock the Arkansas Medical Society elected Dr Richard C Dickinson, Horatio, president, Dr William R Brooksher, Fort Smith, president-elect, Drs John H Wilson, Magnolia, Thomas Wilson, Wynn, and Johnnie P Price, Monticello, vice-presidents, Dr Daniel H Autry, Little Rock, treasurer, and Dr John J Monfort, Batesville, secretary

University News—The University of Arkansas School of Medicine, Little Rock, has received a gift of \$1,000 from Dr Louis Friedman of Birmingham, Ala, to promote alumni activities and public relations—O Boyd Houchin, Ph D, Iowa State College, has been appointed assistant professor of neurology at the University of Arkansas School of Medicine, Little Rock. Dr Houchin will devote his time to the study of the biochemistry of the brain, a project now in operation in the department of neurology under the sponsorship of the United Cerebral Palsy Associations, Inc

CALIFORNIA

Joseph McCarthy Prize Awarded—At the recent meeting of the Western section of the American Urological Association, in San Francisco, the Joseph F McCarthy prize essay award of \$200 was given to Drs Joseph J Kaufman, Beverly Hills, Milton Rosenthal, Culver City, and Willard E Goodwin, Los Angeles, for their paper "Methods of Diagnosis of Carcinoma of the Prostate A Comparison of Clinical Impression, Papanicolaou Stains, Needle Biopsy, Transurethral Biopsy and Open Perineal Biopsy" The study emanated from the University of California at Los Angeles School of Medicine and the VA Center, Los Angeles

Japanese Honor Colonel Hunter—Residents of Nagatoishicho, Japan, have erected a monument to Col George W Hunter, Ph D, San Francisco, who from 1947 to 1949 supervised periodic spraying of irrigation ditches in their city, which were breeding grounds for disease bearing snails Incidence of schistosomiasis is said to have been reduced by more than 98% The monument is a life sized bronze bust of Dr Hunter, resting on a cairn of native rock. The inscription, chiseled in Japanese, reads in part 'His sacrificial work and guidance over the two years were greatly appreciated by the population It is our sincere wish to erect this bronze statue for Doctor Hunter in order to praise and remember forever his great work'

COLORADO

Awards in Recognition—At the annual banquet of the University of Colorado Medical Alumni Association, Awards in Recognition were made to the following graduates of the University of Colorado, or of the Gross Medical College or the University of Denver College of Medicine, which were absorbed by it Drs Edward Delchanty Sr, Charles S Elder, Aubrey H. Williams, George R Warner, Rudolph W Arndt, Archibald D Attwood, Robert W Fraser, John M Barney, Wilson C Birkenmayer, Cuthbert Powell, Charles A Bundsen, Walter W King, Denver; Dr Angus Taylor, Pueblo, Dr Walter S Chapman, Walsenburg, Drs Frederick W Lockwood and Arthur F Williams, Fort Morgan, Dr John H. Larson, Wray, Dr Edward W Lazell, Santa Barbara, Calif, Dr Tobias Espinosa, Espanola, N Mex., and Dr Ella A Mead, Greeley All persons who received the award have been in practice 50 or more years

Physicians are invited to send to this department items of news of general interest for example those relating to society activities new hospitals education and public health Programs should be received at least three weeks before the date of meeting

CONNECTICUT

Industrial Institute at Yale Center of Alcohol Studies—To meet the demand for specialized training of key personnel in the establishment of programs of education and rehabilitation of problem drinkers in business and industry, the Yale Center of Alcohol Studies, New Haven, will conduct a training session at Yale University July 27-31 The session will acquaint selected representatives of business and industry with the nature of problem drinking in industry, with policies of treatment, retirement, and separation, with procedures and resources for treatment, and with programs of education and prevention Among the lecturers will be Drs S Charles Franco, Brooklyn, associate medical director, Consolidated Edison Company of New York Giorgio Lolli, research associate, applied physiology, Yale University, and medical director of the Yale Plan Clinic and the Connecticut Commission on Alcoholism, Robert C Page, New York, general medical director, Standard Oil Company of New Jersey, and Arnold Z Pfeffer, assistant clinical professor of psychiatry, New York University College of Medicine and physician in-charge, Consultation Clinic for Alcoholism, University Hospital, New York. The first two days of the session will be devoted to lectures and discussions covering the physiological, psychological, and sociologic aspects of the problem Requests for additional information and applications for admission should be addressed to Yale Center of Alcohol Studies, Industrial Institute, 52 Hillhouse Ave, Yale Station, New Haven

DISTRICT OF COLUMBIA

Dr Forster Named Dean—Dr Francis M Forster, head of the department of neurology, has been named head of the Georgetown University School of Medicine to succeed the Reverend Paul A McNally, S J, regent and dean of the school of medicine, who has been forced to relinquish his position because of ill health The Reverend McNally will become dean emeritus and director of the Georgetown Medical Center Dr Forster was previously affiliated with Jefferson Medical College, Philadelphia, Harvard Medical School, Boston, Boston University School of Medicine, and Yale University School of Medicine, New Haven, Conn He has served at Good Samaritan Hospital in Cincinnati, Boston City Hospital, and the Pennsylvania Hospital in Philadelphia He is the former secretary and present chairman of the A M A Section on Nervous and Mental Diseases He will retain his present post as professor of neurology and head of the department.

ILLINOIS

Personal—Dr George H Vernon, for many years director of the Palmer Sanatorium in Springfield, has accepted appointment as director of the Madison County Sanitarium, Edwardsville

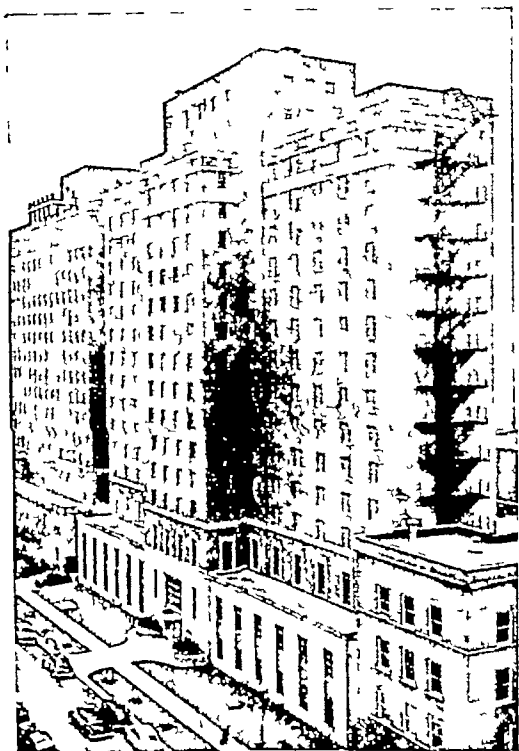
Welfare Advisers Named—Dr Otto L. Bettag, Illinois state director of public welfare, has appointed as consultant in psychiatry Dr Roy R Grinker, clinical professor of psychiatry at the University of Illinois College of Medicine, Chicago and director of the Institute for Psychosomatic and Psychiatric Research and Training of Michael Reese Hospital, and as consultant in research Dr Ralph W Gerard, professor of neurophysiology and physiology, University of Illinois College of Medicine

Society News—At the annual meeting of the Illinois Chapter of the American College of Chest Physicians, Dr Abel Froman, Chicago, was elected president, Dr Clifton F Hall, Springfield, vice president, and Dr Albert H Andrews Jr, Chicago, secretary—The Scientific Service Committee of the Illinois State Medical Society is revising the list of speak

ers available to county medical societies. All physicians wishing to be included are urged to send in their names, a list of subjects for which they would be available, and their affiliations with medical school teaching staffs and hospital staffs. Mention should also be made of the type of slides used in talks and titles of movies if available. Write to Dr Louis R. Limarzi, Chairman of the Scientific Service Committee, Illinois State Medical Society, Rm 801, 185 N Wabash Ave., Chicago 1.

Chicago

Residence Hall at Cook County Hospital—The Dr Karl A. Meyer Hall, a 15 story residence for interns and resident physicians at Cook County Hospital, was recently dedicated. The new 3 million dollar building, at 720 S Wolcott Ave., is connected to the hospital by a tunnel. It will house 297



Karl A. Meyer Hall

persons. There are 283 single rooms for interns, 12 two room and 5 five room apartments for staff, a cafeteria, gymnasium, handball courts, game room, and snack bar. The library has been named in honor of Dr. Frederick Tice, who has served the hospital for many years.

Personal.—Dr. Donald G. Anderson, Chicago, Secretary of the A. M. A. Council on Medical Education and Hospitals, delivered an address "The Rebellion Against the Teaching of Scientific Medicine" at the recent commencement exercises of Boston University School of Medicine. Dr. William S. Kroger, assistant professor of gynecology, Chicago Medical School, gave a lecture "The Use of Hypnosis in Child Birth," with color and sound film, at Sinai Hospital, Baltimore, June 1, to the obstetric department of Johns Hopkins University School of Medicine, Baltimore, June 2, and at Mount Sinai Hospital, New York, June 5. Dr. George Halperin, associate editor of THE JOURNAL, returned recently from a five week trip to France, Italy, and Israel where he delivered a lecture on medical journalism before the faculty of the medical school of the Hebrew University of Jerusalem and the medical profession.

MARYLAND

Society News—The Radiologic Section of the Baltimore City Medical Society recently elected Dr. David N. Gould, Johns Hopkins Hospital, Baltimore, chairman, and Dr. H. Leonard Warren, 2337 Eutaw Place, Baltimore 17, secretary. At the initial meeting of the Maryland Radiological Society, the following officers were elected for the coming year: chairman, Dr. Richard B. Hanchett, Baltimore, vice-chairman, Dr. Edgar T. Campbell, Hagerstown, and secretary-treasurer, Dr. H. Leonard Warren, Baltimore.

Dean of Medical Faculty—Philip Bard, Ph.D., professor of physiology at the Johns Hopkins University School of Medicine, Baltimore, has been appointed dean of the medical faculty to succeed Dr. Alan M. Chesney, who has retired after nearly 25 years as dean of the school. In addition to serving as dean, Dr. Bard will continue in his present position in the department of physiology. He is the author of numerous scientific papers based on his research in physiology and medicine. During World War II, Dr. Bard served as special consultant to the government in the Office of Scientific Research and Development and on committees of the National Research Council. He has served on the faculties of Harvard and Princeton and has been selected to deliver numerous memorial lectures. Dr. Chesney, who has been dean of the school of medicine since 1929, will continue his association with the Hopkins institutions in an emeritus capacity. He plans to devote his immediate future to the completion of the second volume of his chronicle "The Johns Hopkins Hospital and the Johns Hopkins University School of Medicine," the first volume of which was published in 1943. Dr. Chesney was one of the founders of the Maryland Society for Medical Research, composed of laymen and physicians, which battled the antivivisectionists to an overwhelming defeat at the polls in 1950, when the antivivisectionists took the fight before the public on a referendum question.

MASSACHUSETTS

Dr. George Shattuck Honored—Dr. George C. Shattuck, clinical professor of tropical medicine, emeritus, Harvard Medical School, Boston, was recently honored for 30 years of service as chairman of the health council of the United Community Services of Metropolitan Boston. During a meeting at which Dr. Shattuck's retirement from the chairmanship was announced, the Health Council presented him with a citation which read in part: "The work which this organization has accomplished has been due in large part to your comprehension of public health work and your awareness of the needs of the community."

Dr. Schmidt Joins American Joint Distribution Committee—Dr. William M. Schmidt, since 1949 associate professor of maternal and child health practice, Harvard University School of Public Health, Boston, has submitted his resignation and in September will return to his former work as medical adviser to the executive council of the American Joint Distribution Committee with headquarters in Paris. Dr. Schmidt, who was previously regional consultant to the U.S. Children's Bureau in Washington, D.C., in 1950 made a survey for the state department of maternal and child health in the U.S. zone of Germany. He attended the first meeting of WHO's Expert Panel on Maternity Care in Geneva, November, 1951. While at Harvard, he served also as associate physician of the Children's Medical Center Child Health Division.

MISSOURI

State Medical Election—At the Kansas City session the Missouri State Medical Association installed Dr. E. Claude Bohrer, West Plains, as president and chose the following officers: Dr. Harold E. Petersen, St. Joseph, president-elect, Drs. Guy N. Magness, St. Louis, Frank R. Teachenor, Kansas City, and Thomas E. Ferrell, Springfield, vice presidents, Dr. Carl F. Vohs, St. Louis, treasurer, and Dr. Edward R. Bohrer, Jefferson City, secretary.

NEW JERSEY

Cardiovascular Traineeship—St Michael's Hospital, Newark, announces the establishment of a full time traineeship program in cardiovascular diseases, approved by the National Heart Institute. Information may be obtained from Dr Nicholas A Antonius, director of the department of cardiology.

Personal—Dr Frederick F Yonkman, vice president in charge of research for Ciba Pharmaceutical Products, Inc., Summit, has been elected to serve as a trustee of the Columbia University College of Pharmacy, New York. Dr Yonkman is on the teaching staff of Columbia University College of Physicians and Surgeons.—Dr Henry H Kessler, Newark, was recently named "citizen of the year" by the New Jersey Society of Professional Engineers, at a dinner at the Hotel Essex House, Newark.—Dr Harry B Slocum was honored at a dinner celebrating his 50 years on the medical staff of Monmouth Memorial Hospital, Long Branch.—The staff of Overlook Hospital, Summit, recently honored the following physicians for their service to the hospital and community: Dr John L Meeker, former staff member, who has practiced for 50 years and is now a consultant in medicine; Dr Arthur E. Tator, who was retiring from the active staff to become surgical consultant; Dr Cedric C Carpenter, who recently retired as president of the hospital medical staff; and Dr John M Atkinson, Madison, who succeeded him.

NEW YORK

Grant for Air Research—Dean Harold C Wiggers, Ph D., of Albany Medical College, has announced that a \$5,000 grant in aid has been given to the college by the Air Research and Development Command of the Air Force for studies on the effects of temperature extremes on body fluids and electrolytes. Gerald S Kanter, Ph D., who joined the medical college staff last year as instructor in physiology after doing research on the subject at the University of Rochester School of Medicine and Dentistry, will carry out the studies.

Art Contest—The Academy of General Practice Art Convention, which will hold its scientific exhibit at the Hotel Statler, New York, Oct 28-30, invites physicians of New York State to submit entries. A war bond prize will be awarded to the physician who best interprets in an oil painting the theme "Medicine Today." Originality and oil technique will be among the features considered. Entries in other fields, such as photography, sculpturing, and hobby work, may also be submitted. Dr F Donald Napolitano, 2281 University Ave., New York, has been reappointed chairman of the convention.

New York City

Dr McDonald Appointed Dean at Lebanon—Dr Joseph J McDonald, visiting surgeon and director of surgical services, Francis Delafield Hospital, has been appointed dean of the Medical School of the American University of Beirut, Lebanon, to succeed Dr Norman B Nelson who was named dean of the State University of Iowa College of Medicine in Iowa City. Dr McDonald, who served at the American University of Beirut as associate professor of surgery and chairman of the department from 1946 to 1950, was subsequently affiliated with Columbia University College of Physicians and Surgeons and Presbyterian Hospital.

Dr Gasser Retires as Rockefeller Director—Dr Herbert S Gasser, director of the Rockefeller Institute for Medical Research, recently reached the retirement age after more than 17 years of service. Dr Gasser, who with Joseph Erlanger in 1944 received the Nobel Prize for discoveries concerning the differentiated functions of nerve fibers, joined the institute in 1935, succeeding its first director, the late Dr Simon Flexner. He had previously been affiliated with (1) the University of Wisconsin Medical School, Madison, where as a student he served as instructor in physiology, (2) Washington University in St. Louis where he served as instructor in physiology and, after service in World War I, during which he did considerable

research in traumatic shock and in chemical warfare, was named head of its department of pharmacology and (3) Cornell University Medical College, New York where he was professor of physiology and head of the physiological laboratories.

NORTH CAROLINA

Medical Town Hall—Dr George J Baylin, program director, announces that Duke University School of Medicine, Durham, will present its second Medical Town Hall at 4 p.m. July 26, in the Physics Building auditorium. Topics will be skin diseases, including poison ivy, sunburn, poison oak, eczema, warts, acne, diaper rash, and other skin irritations. Speakers will be Dr Susan C Dees, associate professor of pediatrics, formerly a vice president of the American College of Allergists, and Dr J Lamar Callaway, professor of dermatology, past president of the Southeastern Dermatological Association, and formerly vice-chairman of the Southern Medical Association. Five university faculty members will join Drs Callaway and Dees as members of a panel to answer questions.

Health Center Dedicated at Chapel Hill—The University of North Carolina at Chapel Hill recently dedicated as part of its new health center the North Carolina Memorial Hospital, the school of dentistry, the school of nursing, and the new four year expanded school of medicine. Dr Henry T Clark Jr, administrator of the Division of Health Affairs, presided at the program in Memorial Hall. The speaker was Dr Joseph T Wearn, dean and professor of medicine at Western Reserve University School of Medicine, Cleveland. Dr W Reece Berryhill, dean, presided at the school of medicine meeting at which a portrait of Dr Hubert A. Royster, former dean of the medical school in Raleigh and dean emeritus of the university medical school, was presented. Dr Royster, who is a past president of the North Carolina Medical Society, is now professor of surgery emeritus at Chapel Hill. Among the other speakers at the dedication services were Dr David P Barr, professor of medicine, Cornell University Medical College, New York, and Dr Malcolm T MacEachern, Chicago, director of professional relations, American Hospital Association.

SOUTH CAROLINA

State Medical Election—At the annual meeting the South Carolina Medical Association installed Dr Charles R F Baker, Sumter, as president, and chose as president-elect, Dr Thomas R Gaines, Anderson. Reelected were Dr George D Johnson, Spartanburg, vice president, Dr Robert Wilson Jr, Charleston, secretary, and Dr J Howard Stokes, Florence, treasurer. Mr M L Meadors, Florence, was reappointed as executive secretary.

WEST VIRGINIA

Governor Appoints Licensing Board—Dr Oscar Bernard Biern, Huntington, who has served as secretary, vice president, and president of the Cabell County Medical Society, and as chairman of the State Medical Association's committee on mental hygiene, has been named by Gov William C Marland as a member of the medical licensing board for a five year term to succeed Dr Walter E Vest, also of that city. Other physician members of the board are Drs Frank J Holroyd, Princeton, George F Evans, Clarksburg, Cecil B Pride, Morgantown, William P Bittinger, Summerlee, and Doff D Daniel, Beckley. Dr Newman H Dyer, Charleston, state director of health, an ex officio member of the board, serves as its secretary.

WYOMING

Dr McEnery Honored—Dr Douglas W McEnery, cancer control officer and director of the division of communicable disease control, Wyoming Department of Public Health, was honored at a dinner given by the Wyoming division of the American Cancer Society, when an engraved medal from the American Cancer Society was presented to him.

GENERAL

Papers Invited for Cytology Meeting.—The first annual meeting of the Inter-Society Cytology Council will be held in Philadelphia, Nov 19-20. Those interested in presenting papers pertaining to the cytological method for the diagnosis of cancer and related subjects are urged to send titles, together with an informative abstract of not more than 300 words, before Aug 1 to the chairman of the program committee, Dr Abraham E Rakoff, Jefferson Medical College of Philadelphia, 1025 Walnut St., Philadelphia 3.

Psychiatric Endowment Fund.—The American Psychiatric Association (1785 Massachusetts Ave NW, Washington 6, D C) has established an endowment fund for the support of projects that will advance mental health. Contributions (which are tax exempt) will be used (1) to study the nature, causes, treatment, and prevention of mental disorders, (2) to raise standards of treatment and care for the mentally ill in hospitals, (3) to further psychiatric education and research, and (4) to make available psychiatric knowledge useful to other branches of medicine, other sciences, and to the public welfare.

Social Hygiene Awards.—At a social hygiene day luncheon in New York the American Social Hygiene Association recently awarded honorary life membership to Jacob A Goldberg, Ph.D., director of the New York Tuberculosis and Health Association's social hygiene division, Dr Charles D Bowdoin, venereal disease control officer, Georgia Department of Public Health, Atlanta, and Dr Gloyd G Wetherill, director of health education, San Diego (Calif) city schools. The association also bestowed on Bailey Barton Burritt, LL.D., the William Freeman Snow award for distinguished service to humanity.

Urology Award.—The American Urological Association offers an annual award of \$1,000 (first prize \$500, second prize \$300, and third prize \$200) for essays on the result of some clinical or laboratory research in urology. Competition is limited to urologists who have been in such specific practice for not more than 10 years and to men in training to become urologists. The first prize essay will appear on the program of the meeting of the American Urological Association at the Waldorf-Astoria, New York, May 31 to June 3, 1954. For full particulars, write the executive secretary, Mr William P Didusch, 1120 N Charles St., Baltimore 1. Essays must be in his hands before Feb 1, 1954.

Grant to Medical Social Workers.—A March of Dimes grant of \$39,043 has been awarded by the National Foundation for Infantile Paralysis to the American Association of Medical Social Workers for improving standards of practice in medical social work and the educational programs of students being trained for this field. The foundation has appropriated \$100,000 this year for the training of medical social workers. The scholarship program is administered directly by the national foundation with the assistance of a special scholarships committee that reviews the candidates' qualifications and recommends awards. Application for scholarships can be obtained from the National Foundation for Infantile Paralysis, Division of Professional Education, 120 Broadway, New York 5.

Research on Mental Illness.—The National Association for Mental Health has announced its intention to go into "large-scale" financing of research on mental illness. According to Mr Robert M Heiminger, executive director, with the exception of a comprehensive research program on schizophrenia for which funds have been contributed during the past 16 years by the Thirty-Third Degree Scottish Rite, the organization has heretofore usually "been content to encourage research and to help initiate it through consultation with government bodies, universities, hospitals, and other research centers." The new plan contemplates the direct allocation of funds for research by means of grants and the creation of a commission for research on mental illness. Preliminary planning on the research program will get under way early in the fall.

Birth Rate Among College Graduates.—The Population Reference Bureau in Washington, D C, has completed an eight year study of fertility rates of college graduates. It is said to show that the trend to have more children has been upward since 1936. Among the 1943 graduates, men averaged 1.63 children per graduate, and women, 1.30 children, among the 1936 graduates, fertility scores were 1.02 for men and 0.95 for women. The gain in the number of children per woman graduate of the class of 1943 over the alumnae of 1936 amounted to 36.8%. The study, conducted by Dr Clarence J Gamble and Mrs Betty U Kibbee, Milton, Mass., makes available data for individual colleges throughout the United States. Fertility scores of the 269 cooperating colleges are available on request to the Population Reference Bureau, Inc., 1507 M St., NW, Washington 5, D C.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories, and possessions in the weeks ended as indicated.

Area	July 4, 1953		July 5, 1953 Total
	Paralytic Type	Total Cases Reported	
New England States			
Maine		3	3
New Hampshire		1	1
Vermont		8	2
Massachusetts	6	1	
Rhode Island		6	2
Connecticut	1		
Middle Atlantic States			
New York	10	50	24
New Jersey		4	2
Pennsylvania		8	4
East North Central States			
Ohio	7	23	40
Indiana		13	2
Illinois	9	21	4
Michigan	14	20	13
Wisconsin		2	3
West North Central States			
Minnesota	13	24	4
Iowa	5	16	27
Missouri		8	10
North Dakota		1	1
South Dakota		1	2
Nebraska	6	11	16
Kansas		10	17
South Atlantic States			
Delaware		8	
Maryland		4	
District of Columbia	4	2	
Virginia	9	13	10
West Virginia	3	4	5
North Carolina	18	37	7
South Carolina	1	7	
Georgia		20	11
Florida	2	10	10
East South Central States			
Kentucky	4	12	2
Tennessee	5	14	12
Alabama	11	22	17
Mississippi		16	26
West South Central States			
Arkansas	7	12	10
Louisiana	7	18	19
Oklahoma	16	41	26
Texas	17	81	183
Mountain States			
Montana			1
Idaho		1	1
Wyoming			
Colorado		6	6
New Mexico		2	16
Arizona		1	7
Utah		4	1
Nevada			
Pacific States			
Washington		6	14
Oregon		2	9
California	1	23	43
Territories and Possessions			
Alaska			
Hawaii			
Puerto Rico			18
Total	206	623	638

FOREIGN

British Occupational Hygiene Society.—This society was inaugurated at the London School of Hygiene and Tropical Medicine on April 27. In addition to physicians the founder members include engineers, chemists, and physicists. The first president of the society is Dr T Bedford, director of the Environmental Hygiene Research Unit of the Medical Research Council at the London School of Hygiene and Tropical Medicine.

Meeting on Logopedics.—The convention of the International Association of Logopedics and Phoniatrics will be held Sept 15 at Zurich, Switzerland. Official reports will be given on "Congenital Language Disorders," "Physiology of the Voice," and "Electroacoustic Analysis and the Physiological and Esthetic Problems of the Voice." Requests for information should be sent to the Organizational Committee, Piazza S Ambrogio 9, Milano, Italy.

Angiologists to Meet in Lisbon.—The International Society of Angiology will hold a congress in Lisbon, Portugal, Sept 18-20, under the presidency of Dr Emile F Holman, San Francisco. At a joint session with the International Society of Surgery, Friday, a symposium on aneurysms will be presented. Saturday there will be a symposium on mitral valvular surgery, and on Sunday an angiology forum. Information may be obtained from Dr Henry Hamovici, Secretary General, 105 E 90th St., New York 28.

Microbiologists Meet in Rome.—The International Congress for Microbiology will convene in Rome, Italy, Sept 6-12 at the Città Universitaria. The following symposiums are planned: bacterial cytology, microbial metabolism, nutrition and growth factors, growth inhibitors and chemotherapy, morphology, biology, and systematics of the actinomycetales, and host-virus interactions. Communications should be addressed to the Segreteria del Congresso, Istituto di Igiene, G Sanarelli, Città Universitaria, Rome, Italy.

India Speeds Birth Control Program.—Because government officials believe that the threat of overpopulation is too critical for further delay, the \$1,300,000 birth control program, which was incorporated into India's master five year plan, adopted two years ago, is being put into operation ahead of schedule. T Lakshmi Narayana, deputy director general of health services in charge of family planning, stated that the program was expected to be in full operation by the end of the year. India's population, estimated at 365 million persons, increased 42 million between 1941 and 1951.

Congress on Medical Librarianship.—The first International Congress on Medical Librarianship will be held in London July 20-25 in the anatomy and physiology lecture theaters, University College, Gower Street, with the inaugural session in Beveridge Hall, Senate House, University of London, Malet Street. Tuesday afternoon a symposium on the role of medical libraries in the world today, which will be continued on Wednesday morning, will be followed by the opening of the Armed Forces Medical Library Exhibition at Wellcome Research Institution, 183 Euston Road, NW1 (4 p m). Thursday morning there will be two simultaneous sessions on medical libraries of the world, and Thursday afternoon a symposium on education and training for medical librarianship. Receptions will be held Monday at the British Medical Association House (3-45 p m) and at the Royal College of Surgeons of England (8-30 p m), Wednesday at the Royal Society of Medicine (6 p m), Friday evening at the Royal College of Obstetricians and Gynaecologists, at the Hall of Worshipful Society of Apothecaries, and at Ciba Foundation. A discussion on international cooperation has been scheduled for Saturday morning and visits to the British Museum and to Oxford for Saturday afternoon.

DEATHS IN OTHER COUNTRIES

Dr Harold Balme died recently after an operation at a hospital near his home in Beckenham, England. As consultant adviser on rehabilitation to the United Nations, the World Health Organization, and the UNICEF, Dr Balme served as

chairman of the UN Technical Working Group on the Rehabilitation of the Handicapped and was instrumental in the establishment and development of the coordinated international rehabilitation program being carried out by the UN and specialized agencies.

CORRECTION

William Beaumont, Pioneer Physiologist.—The paper on this subject by Dr Frederick Stenn was read before the Midwestern Regional Group of the Medical Library Association instead of the "Medical Section of the American Library Association" as stated in the footnote to this article in THE JOURNAL, July 4, 1953, page 915. The American Library Association does not have a medical section.

EXAMINATIONS
AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS. *Parts I and II.* All centers where there are five or more candidates. Sept. 8-10 (Part I only). Candidates may file applications at any time but the National Board must receive them at least six weeks before the date of the examination they wish to take. *Part III.* June 9-26. Examination will be held in each of 31 centers having five or more eligible candidates. Exec. Sec. Dr John P. Hubbard, 133 South 36th St., Philadelphia 4.

EXAMINING BOARDS IN SPECIALTIES

- AMERICAN BOARD OF ANESTHESIOLOGY.** *Written.* Various locations. July 16. Final date for filing applications was January 17. Sec. Dr C. B. Hickcox, 80 Seymour St., Hartford 15.
- AMERICAN BOARD OF DERMATOLOGY AND SYPHILIGOLOGY.** All candidates must now pass a written examination. *Written.* Various centers. Sept. 3. *Oral.* Philadelphia. Oct. 16-18. To be eligible, candidate must complete 36 months of training before Oct. 1. Final date for filing applications was May 1. Exec. Sec. Miss Janet Newkirk, 66 East 66th St., New York 21.
- AMERICAN BOARD OF INTERNAL MEDICINE.** *Oral.* San Francisco. Sept. 30-Oct. 2. Chicago, Nov. 30-Dec. 2. The closing date for acceptance of applications for the San Francisco and Chicago oral examination was April 1. *Written.* October 19. The closing date for acceptance of applications was May 1. Exec. Sec. Treas. Dr William A. Werrell, 1 West Main St., Madison 3.
- AMERICAN BOARD OF NEUROLOGICAL SURGERY.** *Oral.* New Haven. October. Final date for filing application is July 1. Sec. Dr Leonard T. Furlow, Washington University School of Medicine, Kingshighway and Euclid Ave., St. Louis.
- AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY.** *Written.* Various cities of the United States and Canada. Feb. 5. Application for examination or re-examination as well as requests for resubmission of case reports, must be made prior to October 1. Sec. Dr Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.
- AMERICAN BOARD OF OPHTHALMOLOGY.** Chicago. Oct. 5-9. *Written.* Various Centers. January 1954. Final date for filing applications is July 1. Sec. Dr Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.
- AMERICAN BOARD OF ORTHOPAEDIC SURGERY.** Chicago. January 1954. Final date for filing application is August 15. Sec. Dr Harold A. Sofield, 122 S. Michigan Ave., Chicago 3.
- AMERICAN BOARD OF OTOLARYNGOLOGY.** *Oral.* Chicago. Oct. 5-9. Sec. Dr Dean M. Llerle, University Hospital, Iowa City.
- AMERICAN BOARD OF PATHOLOGY.** *Written.* *Pathologic Anatomy and Clinical Pathology.* Chicago. Oct. 8-10. Sec. Dr William B. Wartman, 303 E. Chicago Ave., Chicago.
- AMERICAN BOARD OF PEDIATRICS.** *Oral.* Ann Arbor. June 26-27. Place undecided. Oct. 9-11 (tentative), Indianapolis. November. Exec. Sec. Dr John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.
- AMERICAN BOARD OF PLASTIC SURGERY.** *Entire Examination.* San Diego, Oct. 29-31. Final date for receipt of case reports was June 1. *Entire Examination.* Galveston. April 17-19. Final date for receipt of case reports is Jan. 1. Corres. Sec. Mrs. Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8.
- AMERICAN BOARD OF PROCTOLOGY.** *Part II.* *Oral and Written.* *Anorectal Surgery and Proctology.* Philadelphia. Sept. 19. Sec. Dr Louis A. Bule, 102-110 Second Ave. S.W., Rochester, Minn.
- AMERICAN BOARD OF RADIOLOGY.** *Oral.* *Radiology.* *Röntgenology.* *Diagnostic Röntgenology and Therapeutic Radiology.* Chicago. Dec. 6-11. Final date for filing application is July 1. Sec. Dr B. R. Kirklin, 102-110 Second Ave. S.W., Rochester, Minn.
- BOARD OF THORACIC SURGERY.** *Written.* Various centers throughout the country. September 11. Final date for filing application is July 1. Sec. Dr William M. Tuttle, 1151 Taylor Ave., Detroit 2.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr George F Lull 535 North Dearborn St., Chicago 10 Secretary

1953 Clinical Session, St. Louis, Dec. 1-4
 1954 Annual Session, San Francisco, June 21-25
 1954 Clinical Session, Miami Florida Nov 30-Dec 3.
 1955 Annual Session, Atlantic City, N. J., June 6-10
 1955 Clinical Session, Boston, Nov 29-Dec 2.

AMERICAN CONGRESS OF PHYSICAL MEDICINE Palmer House Chicago Aug 31-Sept 4 Dr Walter J Zelter 30 North Michigan Ave Chicago 2 Executive Director

AMERICAN DIETETIC ASSOCIATION Los Angeles Aug 24-28 Miss Ruth M Yake 620 N Michigan Ave Chicago 11 Executive Secretary

AMERICAN ELECTROENCEPHALOGRAPHIC SOCIETY Commander and Continental Hotels Cambridge Mass Aug. 17-22, Dr John A Abbott, Massachusetts General Hospital Boston 14 Secretary

AMERICAN HOSPITAL ASSOCIATION San Francisco Aug 31 Sept 3 Mr George Bugbee 18 East Division St Chicago 11 Executive Director

AMERICAN SOCIETY FOR PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS Fall Meeting Yale University New Haven Conn Sept 7-9 Dr Carl C Pfeiffer 1853 West Park St Chicago 12 Secretary

AMERICAN VETERINARY MEDICAL ASSOCIATION Royal York Hotel Toronto Canada July 20-23 Dr J G Hardenbergh 600 South Michigan Blvd Chicago 5 Executive Secretary

BIOLOGICAL PHOTOGRAPHIC ASSOCIATION Hotel Statler Los Angeles Aug 31 Sept 3 Miss Jane H Waters 533 West 57th St. New York 19 Secretary

GERONTOLOGICAL SOCIETY Mark Hopkins Hotel San Francisco Aug 25-27 Dr Nathan W Shock Baltimore City Hospitals Baltimore 24 Secretary

NATIONAL MEDICAL ASSOCIATION Nashville Tenn Aug 10-14 Dr John T Givens 1108 Church St Norfolk 10 Va Executive Secretary

POST GRADUATE MEDICAL ASSEMBLY OF SOUTH TEXAS Shamrock Hotel Houston July 20-22 Dr C A Dwyer 229 Medical Arts Bldg Houston Secretary

REGIONAL MEETINGS AMERICAN COLLEGE OF PHYSICIANS
 WEST VIRGINIA White Sulphur Springs July 24 Dr Paul H Revercomb 1031 Quarrier St Charleston 1 Governor

SOCIETY OF AMERICAN BACTERIOLOGISTS Palace Hotel San Francisco Aug 10-14 Dr John H Bailey Sterling Winthrop Research Institute Rensselaer N Y Secretary

UTAH STATE MEDICAL ASSOCIATION Salt Lake City Sept 10-12 Dr Homer E Smith 42 South Fifth East St Salt Lake City 2 Secretary

WEST VIRGINIA STATE MEDICAL ASSOCIATION The Greenbrier White Sulphur Springs July 23-25 Mr Charles Lively P O Box 1031 Charleston 24 Executive Secretary

FOREIGN

ASSOCIATION OF SURGEONS OF GREAT BRITAIN AND IRELAND Leeds England May 13-15 1954 Dr Henry W S Wright, 45 Lincoln's Inn Fields London W C 2, England, Honorary Secretary

CANADIAN MEDICAL ASSOCIATION Vancouver B C Canada June 18-22 1954 Dr T C Routley 135 St Clair Ave W Toronto 5 Ont Canada General Secretary

CONGRESS OF INTERNATIONAL ANESTHESIA RESEARCH SOCIETY Chateau Frontenac Quebec Canada October 26-29 Dr A. William Friend 515 Nome Ave Akron 20 Ohio Chairman Program Committee.

CONGRESS OF THE INTERNATIONAL ASSOCIATION OF LIMNOLOGY Cambridge and Windermere England Aug 20-30 For information write Professor G C Hutchinson Osborn Zoological Laboratory Yale University New Haven Conn U S A

CONGRESS OF THE INTERNATIONAL LEAGUE AGAINST RHEUMATISM Geneva Switzerland and Aix-les Bains France Aug 23-29 For information write Dr W Tegner The London Hospital London E 1 England

CONGRESS OF THE INTERNATIONAL SOCIETY OF ANGIOLOGY Lisbon Portugal Sept. 18-20 Dr Henry Halmovici 105 East 90th St New York 28 N Y U S A Secretary

CONGRESS OF THE INTERNATIONAL SOCIETY OF SURGERY Lisbon Portugal Sept 14-20 Dr L. Dejardin 141 rue Belliard Brussels Belgium General Secretary

INTERIM MEETING AERO MEDICAL ASSOCIATION University of Brussels Medical School Brussels Belgium, Sept 24-27 Dr Andre Allard Medical Director of SABENA 145 Rue Royale Brussels Belgium Secretary

INTERNATIONAL CONFERENCE ON THROMBOSIS AND EMBOLISM Basle Switzerland July 15-19 1954 Dr W Merz, Chief Medical Officer Gynecological Clinic University of Basle, Basle Switzerland Hon Secretary

INTERNATIONAL CONGRESS OF ACUPUNCTURE Kolpinghaus Adolf Kolping Strasse 1 Munich Germany August 22-25 Dr G Bachmann 29 Lillenstrasse München 9 Germany Organizer and Secretary

INTERNATIONAL CONGRESS OF ELECTROENCEPHALOGRAPHY AND CLINICAL NEUROPHYSIOLOGY Boston Mass U S A Aug 18-21 Dr Robert S Schwab Massachusetts General Hospital Boston 14 Mass U S A. Secretary-General

INTERNATIONAL CONGRESS OF THE EUROPEAN SOCIETY OF HAEMATOLOGY Amsterdam Holland Sept 8-12, Dr M C. Verloop Molliesingel 15 Utrecht, Holland Secretary

INTERNATIONAL CONGRESS ON GENETICS Bellagio Italy August 24-31 Prof C Barigozzi Istituto de Genetica Università de Milano 10 via Celoria, Milan Italy Secretary

INTERNATIONAL CONGRESS OF HIPPOCRATIC MEDICINE Evian France Sept 3-6 Prof P Delore 13 rue Jarente Lyon France Secretary-General
INTERNATIONAL CONGRESS FOR HISTORY OF SCIENCE Jerusalem Israel August 3-7 Prof F S Bodenheimer Hebrew University Jerusalem Israel President

INTERNATIONAL CONGRESS OF HYDROCLIMATISM AND THALASSOTHERAPY Dubrovnik Yugoslavia May 8-16 1954 Prof C Plavsic Zeleni Venac 1 Belgrade Yugoslavia Secretary General

INTERNATIONAL CONGRESS OF INTERNATIONAL COLLEGE OF SURGEONS Sao Paulo Brazil April 26-May 2 1954 Dr Max Thorek 1516 Lake Shore Drive Chicago Illinois U S A Secretary-General

INTERNATIONAL CONGRESS OF LOGOPEDICS AND PHONiatrics Zurich Switzerland Sept. 15 Dr Deso A Weiss 115 East 86th St. New York 28 N Y U S A General Secretary

INTERNATIONAL CONGRESS ON MEDICAL LIBRARIANSHIP London England July 20-25 Mr W R LeFanu % London School of Hygiene and Tropical Medicine Keppel Street London W C 1 England Chairman.

INTERNATIONAL CONGRESS ON MENTAL HEALTH University of Toronto Toronto Ontario Canada Aug 14-21 1954 For information write Executive Officer International Congress on Mental Health 111 St. George St. Toronto Ontario Canada.

INTERNATIONAL CONGRESS OF MICROBIOLOGY Rome Italy Sept 6-12. For information write Dr V Puntoni Clita Universitaria Rome Italy

INTERNATIONAL CONGRESS ON OBSTETRICS AND GYNECOLOGY Geneva Switzerland July 26-31 1954 Dr H. de Watterville Maternité Hôpital Cantonal Geneva Switzerland President.

INTERNATIONAL CONGRESS OF PAEDIATRICS Havana Cuba Oct 12-17 Prof Felix Hurtado 5a Avenue 124 Miramar Havana Cuba President.

INTERNATIONAL CONGRESS OF PSYCHOLOGY Montreal Canada June 7-12 1954 For information write Prof H S Langfeld International Union of Scientific Psychology Eno Hall Princeton University Princeton N J U S A

INTERNATIONAL CONGRESS OF RADIOLOGY Copenhagen Denmark July 19-25 Professor Flemming Norgaard 10 Oster Voldgade Copenhagen K Denmark Secretary General

INTERNATIONAL CONGRESSES OF TROPICAL MEDICINE AND MALARIA Istanbul Turkey Aug. 28-Sept 4 Professor Dr Ihsan Sükrü Aksel Tunel Meydam Beyoglu Istanbul Turkey General Secretary

INTERNATIONAL CONGRESS OF ZOOLOGY Copenhagen Denmark Aug 5-12 Dr Anton F Bruun The University Copenhagen Denmark Secretary General

INTERNATIONAL GERONTOLOGICAL CONGRESS London and Oxford England July 12-22 1954 Prof R E. Tunbridge General Infirmary Department of Medicine The University Leeds England President

INTERNATIONAL LEPROSY CONGRESS Madrid Spain Oct. 3-10 Dr Felix Contreras Moreto 15 Madrid Spain Secretary

INTERNATIONAL NEUROLOGICAL CONGRESS Lisbon Portugal Sept 7-12 Prof Almeida Lima Avenida do Brazil 53 Lisbon Portugal Secretary-General

INTERNATIONAL OFFICE OF DOCUMENTATION OF MILITARY MEDICINE Rome Italy Oct 14-18 Colonel Medecin Prof A Campana Office of the Ministero della Difesa Esercito Rome Italy Secretary

INTERNATIONAL PHYSIOLOGICAL CONGRESS Montreal Canada Aug 31-Sept 4 Dr A S V Burgen Dept of Physiology McGill University Montreal Canada Secretary

INTERNATIONAL PSYCHO-ANALYTICAL CONGRESS Bedford College Regents Park London NW 1 England July 26-30 Dr Ruth S Eissler 285 Central Park West, New York 24 N Y Hon Secretary

INTERNATIONAL SOCIETY FOR THE STUDY OF BIOLOGICAL RHYTHMS Basle Switzerland Sept. 18-19 For information write Prof Dr F Georgi Neurologische Universitäts-Poliklinik Sociinstrasse 55 Basle Switzerland.

INTERNATIONAL VETERINARY CONGRESS Stockholm Sweden Aug 9-15 Prof. Axel Isaksson Institute of Veterinary Medicine Stockholm 50 Sweden Secretary

JOURNEES MEDICALES Paris France April 21-25 1954 For information write Secretariat of the Journees 12 rue Pierre-Geoffrois Colombes (Seine) France

LATIN AMERICAN CONGRESS OF OBSTETRICS AND GYNECOLOGY Buenos Aires Argentina Oct. 26-31

LATIN AMERICAN CONGRESS OF OTORHINOLARYNGOLOGY Caracas Venezuela, Feb 21-25 1954 Dr Victorino Marquez Reveron Centro Medico Caracas Venezuela, Secretary-General.

PACIFIC SCIENCE CONGRESS Quezon City and Manila Philippines Nov 16-28 Dr Patrocinio Valenzuela College of Pharmacy University of the Philippines Quezon City Philippines Secretary-General

PAN AMERICAN CONGRESS OF OTORHINOLARYNGOLOGY AND BRONCHESOPHAGOGY Mexico D.F Mexico Feb 28-March 4 1954

PAN AMERICAN MEDICAL WOMEN'S ALLIANCE Beekman Towers Hotel New York, N Y Sept. 24-Oct. 1 Dr Ina Marsh 140 Linwood Ave Buffalo N Y U S A. Registration Chairman

PERSIAN GULF MEDICAL SOCIETY Dhahran Saudi Arabia Dec 7-8 Dr N J Conan Jr Department of Internal Medicine Arabian American Oil Company Dhahran Saudi Arabia Secretary

SECTIONAL MEETING AMERICAN COLLEGE OF SURGEONS London England May 17-19 1954 Dr Michael L. Mason 40 East Erie St., Chicago 11 Ill., U S A Secretary

WORLD CONFERENCE ON MEDICAL EDUCATION British Medical Association House Tavistock Square W.C.1 London England Aug. 22-29 Secretariat World Medical Association 2 East 103d St New York 29 N Y., U S A.

WORLD CONGRESS OF THE WORLD CONFEDERATION FOR PHYSICAL THERAPY London England Sept. 7-12, Miss M J Nelson Chartered Society of Physiotherapy Tavistock House South Tavistock Square London, W.C.1 England Secretary

WORLD MEDICAL ASSOCIATION The Hague Netherlands Aug 31-Sept 7 Dr Louis H Bauer 345 East 46th St New York 17 N Y Secretary-General

DEATHS

Eckert, George Arthur ♂ Captain, U S Navy, retired, Newport, R I, born in Newport, R I, Aug 10, 1889, University of Vermont College of Medicine, Burlington, 1914, entered active service in the medical corps of the U S Navy on Aug 1, 1917, during World War I served at the Naval Hospital in Queenstown, Ireland, chief of surgical service at many naval hospitals and aboard hospital ships, including the U S S Solace at Pearl Harbor; during World War II served in the Pacific area aboard the Solace, at naval hospitals in the United States, and at various commissioning units of Navy mobile hospitals, in 1943 served as the senior medical officer of the Hospital Section of Cub no 8, placed on retired list of the Navy on Jan 1, 1945, retained on active duty until Jan 1, 1946, when he was released to inactive duty, member of the founders group of the American Board of Surgery, fellow of the American College of Surgeons, affiliated with the Newport Hospital and the U S Naval Hospital, where he died June 5, aged 63, of infarction of the myocardium

McCord, Clinton Preston ♂ Albany, N Y, born in Elverson, Pa, April 20, 1881, University of Pennsylvania School of Medicine, Philadelphia, 1912, specialist certified by the American Board of Psychiatry and Neurology, member of the American Psychoanalytic Association, American Psychosomatic Society, American Psychiatric Association, and the American Orthopsychiatric Association, for many years director of health education in the public schools, formerly on the faculty of Albany Medical College, for several years consultant in psychiatry to the state health department, served as consulting psychiatrist at the Berkshire Industrial Farm at Canaan, author of numerous monographs on behavior delinquency and war neuroses, died May 10, aged 72

Barlow, Brian Ethelbert ♂ Dermott, Ark., born in Dermott, Oct 29, 1909, University of Arkansas School of Medicine Little Rock, 1937, fellow of the American College of Chest Physicians, American Trudeau Society, Southwest Surgical Congress, and the American Academy of General Practice, past president of the Arkansas Tuberculosis Association and the Chicot County Medical Society, associate, International College of Surgeons, member of the New Orleans Postgraduate Medical Assembly, member of the school board, chamber of commerce, and the city parks and recreation commission, director of the Dermott State Bank, past president of the Rotary Club, on the staff of St Mary's Hospital, died May 21, aged 43, of coronary thrombosis

Slemons, Clyde Calderwood ♂ Grand Rapids, Mich., born in Cedar Springs, Mich., Dec 31, 1874, Detroit College of Medicine, 1905, for many years health officer of Grand Rapids, state health commissioner, and member of the state council of health, first school physician, past president of the Michigan Public Health Association, member of the American Public Health Association, assistant professor of preventive medicine and public health at Wayne University College of Medicine in Detroit from 1936 to 1938, in 1931 received the degree of doctor of public health from his alma mater; on the courtesy staff of the Butterworth Hospital, died May 7, aged 78, of arteriosclerotic myocardial degeneration with congestive failure

Moore, Roy Seeley, Syracuse, N Y, Syracuse University College of Medicine, 1912, clinical professor emeritus of otolaryngology at his alma mater, specialist certified by the American Board of Otolaryngology, member of the American Academy of Ophthalmology and Otolaryngology and the American Laryngological, Rhinological and Otolological Society, fellow of the American College of Surgeons, affiliated with General Hospital and the Hospital of the Good Shepherd, died in Fort Lauderdale, Fla., May 26, aged 68, of coronary occlusion and arteriosclerotic heart disease

Albert, Simon, Providence, R. I., Harvard Medical School, Boston, 1922, specialist certified by the American Board of Radiology, member of the New England Roentgen Ray Society, served during World Wars I and II, affiliated with the Memorial Hospital in Pawtucket, Miriam Hospital and past president of its staff, and the Rhode Island Hospital, where he died May 3, aged 56, of coronary heart disease and hemorrhage from a duodenal ulcer

Barndollar, William Piper ♂ Pittsburgh, University of Pennsylvania Department of Medicine, Philadelphia, 1902, member of the American Laryngological, Rhinological and Otolological Society, affiliated with Allegheny General Hospital, where he died May 11, aged 73, of general arteriosclerosis

Bauder, George Washington ♂ Harrisburg, Pa., Rush Medical College, Chicago, 1903, affiliated with Harrisburg Hospital, died in Harrisburg Polyclinic Hospital April 21, aged 74, of cancer

Bausman, Albert J ♂ Piqua, Ohio, Medical College of Ohio, Cincinnati, 1895, on the staff of the Piqua Memorial Hospital, died May 27, aged 87, of acute coronary occlusion

Beasley, Charles Wesley ♂ Lyndon, Kan., Missouri Medical College, St Louis, 1894, for many years county health officer; died April 7, aged 82

Bennett, Andrew William ♂ Iowa City, State University of Iowa College of Medicine, Iowa City, 1918, past president of the Johnson County Medical Society, served during World War I, affiliated with Mercy Hospital, died April 11, aged 62, of coronary thrombosis

Birch, Charles E., White Plains, N Y, New York Homeopathic Medical College and Hospital, New York, 1891, served as village health officer and as county coroner; formerly on the staff of the White Plains Hospital, died in Katonah May 11, aged 90, of coronary artery occlusion

Brown, Arthur Aloysius ♂ Millbury, Mass., Jefferson Medical College of Philadelphia, 1906, an Associate Fellow of the American Medical Association, chairman of the local board of health and school physician, resigned in 1950 as trustee of the Millbury Savings Bank, died in St Vincent Hospital, Worcester, April 7, aged 71, of coronary thrombosis and pulmonary fibrosis

Bull, Charles Henry, Newport Beach, Calif., Victoria University Medical Department, Coburg, Ontario, Canada, 1892, died April 19, aged 86

Carberry, Blaine Edward ♂ Ford City, Pa., University of Pennsylvania School of Medicine, Philadelphia, 1932, served during World War II, on the staff of the Armstrong County Memorial Hospital in Kittanning, died March 30, aged 47, of coronary occlusion

Carson, Rollett Andrew ♂ Cleveland, University of Toronto Faculty of Medicine, Toronto, Canada, 1922, affiliated with St Luke's Hospital, died May 23, aged 56, of coronary thrombosis

Chandler, Melvin Elwell ♂ Flint, Mich., University of Michigan Homeopathic Medical School, Ann Arbor, 1906 died in St. Joseph's Hospital April 25, aged 81, of bronchopneumonia and arteriosclerosis

Chang, Wah Kai ♂ Honolulu, Hawaii, Rush Medical College Chicago, 1921, fellow of the American College of Surgeons, served as vice president of the Hawaii Territorial Medical Association, past president of the Honolulu County Medical Society, on the staff of St Francis Hospital Kapiolani Maternity and Gynecological Hospital, and Queen's Hospital, where he died March 22, aged 59, of coronary thrombosis

Clecak, Nicholas Jeffries ♂ Oakland, Calif., Rush Medical College, Chicago, 1918, died May 19, aged 60, of bronchogenic carcinoma

Cochran, John Howard ☉ Cape Girardeau, Mo, Barnes Medical College, St Louis, 1911, formerly member of the board of health of Cape Girardeau, past president of the Cape Girardeau County Medical Society, decorated with the British Military Cross for service in the British Division during World War I, died May 4, aged 63, of subarachnoid hemorrhage

Cockrell, Eugene Peyton ☉ Kalispell, Mont., Washington University School of Medicine, St. Louis, 1906, for many years city health officer, veteran of the Spanish American War, died April 17, aged 73, of cancer

Cowan, Arthur ☉ Chenango Bridge, N Y, Julius Maximilians Universität Medizinische Fakultät, Würzburg, Bavaria, Germany, 1906, died in the Broome County Tuberculosis Hospital March 10, aged 63, of cerebral vascular accident

Crandall, Henry Noble, Conneaut, Ohio George Washington University School of Medicine, Washington, D C, 1904, served during World War I, on the staff of the Conneaut Hospital, where he died April 13, aged 75, of congestive heart failure

Cruikshank Bailey, Jean ☉ Greensburg Pa, University of Toronto Faculty of Medicine, Toronto, Canada, 1898, Trinity Medical College, Toronto, 1900, died April 20, aged 85, of arteriosclerotic heart disease

Cummins, William Taylor, San Francisco, University of Pennsylvania Department of Medicine, Philadelphia, 1902, specialist certified by the American Board of Pathology, member of the American Society of Clinical Pathologists, of which he was vice president, for many years secretary of the Pacific Association of Railway Surgeons, served as assistant demonstrator of pathology at his alma mater, on the staff of the Southern Pacific Hospital, where he died May 5, aged 73, of tumor of the brain

Davidson, Joseph Samuel ☉ Forrest City, Ark, Vanderbilt University School of Medicine, Nashville, Tenn, 1910, served during World War I, died April 15, aged 65, of heart disease

Davies, George William ☉ Verona, N J, Baltimore Medical College, 1905 school physician for Verona and Cedar Grove, served during World War I, psychiatrist for the Verona Selective Service Board during World War II, affiliated with Essex County Overbrook Hospital in Cedar Grove and the Mountainside Hospital in Montclair, where he died May 24, aged 74, of carcinoma of the esophagus and cardiac de compensation

Dowlen, Willard Madell, Nashville, Tenn, University of Nashville Medical Department, 1898, died March 21, aged 82, of chronic myocarditis

Du Bols, William John ☉ Kaleva, Mich, University of Georgia School of Medicine, Augusta, 1899, for many years surgeon for the Kent County Welfare Board, formerly practiced in Grand Rapids, where he was on the staff of the Butterworth Hospital, died May 9, aged 80, of cerebral hemorrhage

Eber, Albert H ☉ Lieut Col, U S Army, retired, Detroit, Mich., Detroit College of Medicine, 1897, entered the medical corps of the U S Army as a major on July 1, 1920, and retired Dec 30, 1927, for disability in line of duty promoted to lieutenant colonel on June 21, 1930, under the Act of June 21, 1930, veteran of the Spanish American War and World War I, for many years medical superintendent of the Leland Sanatorium in Ypsilanti, Mich, died in the Receiving Hospital May 17, aged 77

Ellet, William Clinton, Benton Harbor, Mich, University of Michigan Medical School, Ann Arbor, 1921 at one time mayor; served during World War II, member of the state board of registration in medicine, formerly city health officer; affiliated with Mercy Hospital, where he died April 4, aged 56, of carcinoma of the larynx

Farnum, Earl P ☉ Sibley, Iowa, State University of Iowa College of Homeopathic Medicine Iowa City, 1898, died May 16, aged 75, of cerebral hemorrhage

Ferguson, Ward Smith ☉ Grand Rapids, Mich, Chicago College of Medicine and Surgery, 1910, on the staffs of the Blodgett Memorial Hospital and St Mary's Hospital, co founder of the Ferguson Droste-Ferguson Rectal Clinic and Hospital, where he died April 16, aged 66

Fuerste, Frederick ☉ Dubuque, Iowa, State University of Iowa College of Medicine, Iowa City, 1920, died May 12, aged 58, of carcinoma of the lung

George, Raymond Horace ☉ Cincinnati, Loyola University School of Medicine, Chicago, 1916, awarded British Military Cross for bravery during World War I, physician for the Cincinnati regional office of the Veterans Administration, died in the Good Samaritan Hospital April 19, aged 66

Glaze, Kenneth Franklin ☉ Temple, Texas, St Louis University School of Medicine, 1923, fellow of the American College of Physicians, affiliated with VA Center, died April 6, aged 54, of fatty liver

Griffin, Alonzo P Tracy, Calif, University of Tennessee College of Medicine, Memphis, 1891, died in Saratoga March 27, aged 87

Mercer, Mifflin W ☉ Downingtown, Pa, Hahnemann Medical College and Hospital of Philadelphia, 1910 for many years secretary of the board of health of Downingtown and physician for the Pennsylvania Railroad, served on the staffs of the Chester County Hospital and Memorial Hospital of Chester County in West Chester, died April 17, aged 75, of uremia

Miller, Arthur, L., Gilliam, Mo, Missouri Medical College, St Louis, 1896, died April 9, aged 87

Miller, Elwood, Springfield, Ohio, Medical College of Ohio, Cincinnati, 1887, served during World War I, died April 13, aged 88, of bilateral lobar pneumonia and generalized arterio sclerosis

Morrison, Charles Carr Jr ☉ Bar Harbor, Maine, Harvard Medical School, Boston, 1918, fellow of the American College of Surgeons, served as police surgeon in Palm Beach, Fla, honorary officer of the Bar Harbor police and fire departments, affiliated with St Joseph Hospital in Bangor and Eastern Memorial Hospital in Ellsworth, died April 13, aged 59

Morton, Charles Rufus, Madisonville, Ky, Hospital College of Medicine, Louisville, 1906, for many years health officer, died March 22, aged 75

Motley, Jewett Palmar ☉ Birmingham, Ala Rush Medical College, Chicago, 1937, served during World War II, affiliated with South Highlands Infirmary, Jefferson Hillman Hospital, East End Memorial Hospital, Highland Avenue Baptist Hospital, and the West End Baptist Hospital, where he died April 22, aged 46, of carcinoma of the small intestine

Mozngo, Arvine Earl ☉ Indianapolis, Indiana University School of Medicine, Indianapolis, 1913, served during World War I, died in the Robert W Long Hospital April 24, aged 72, of retroperitoneal hematoma and anuria due to general arteriosclerosis

Mullarky, Hugh, Long Beach, Calif, State University of Iowa College of Medicine, Iowa City, 1889, served during World War I, formerly associated with the Indian Service, died April 13, aged 88

Newman, Abraham Jacob ☉ Jersey City, N J, Cornell University Medical College, New York, 1910, died April 19, aged 66

Newman, Lester ☉ San Francisco, Medical Department of the University of California, San Francisco, 1908, member of the Industrial Medical Association, died April 25, aged 70, of hypertensive and arteriosclerotic heart disease

Northridge, William Albert, San Diego, Calif, Long Island College Hospital, Brooklyn, 1882, fellow of the American College of Physicians, formerly on the faculty of his alma mater died April 23, aged 92, of congestive heart failure and arteriosclerosis

Orton, Zenas Van Duzen, Salem, N Y, Albany (N Y) Medical College, 1907, for many years health officer, died in New York City in March, aged 70

Parks, William H ♂ Petoskey, Mich, Detroit College of Medicine, 1912, on the staff of the Lockwood General Hospital, died April 14, aged 65, of coronary occlusion

Parsegan, Jacob Hohanness, San Leandro, Calif, College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1895, died March 17, aged 81, of cerebral thrombosis and arteriosclerosis

Perrin, Deckard Leroy ♂ Seymour, Ind, Hospital College of Medicine, Louisville, Ky, 1898, affiliated with Schneek Memorial Hospital, died in Madison April 6, aged 83, of cerebral arteriosclerosis

Prestridge, Barney Bertrand ♂ Donna, Texas, University of Texas School of Medicine, Galveston, 1944, served during World War II, died April 7, aged 31

Rosenberg, Nicholas L ♂ Pittsburgh, University of Louisville (Ky) Medical Department, 1910, died in the Western Pennsylvania Hospital May 7, aged 66, of myocardial infarction

Rosenfeld, Ernst ♂ Penn Yan, N Y, Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, Germany, 1913, on the staff of the Soldiers and Sailors Memorial Hospital, where he died April 6, aged 67, of acute urinary suppression

Rude, Emerson Waterbury ♂ Utica, N Y, New York Homeopathic Medical College and Hospital, New York, 1902, past president of the Herkimer County Medical Society, formerly practiced in Ilion, where he was affiliated with Ilion Hospital, served on the staffs of the Herkimer (N Y) Memorial Hospital and the Utica (N Y) Memorial Hospital, died April 25, aged 76, of heart disease and cancer

Sandperl, Harry ♂ St Louis, Washington University School of Medicine, St Louis, 1908, fellow of the American College of Surgeons, senior instructor in surgery at St Louis University School of Medicine, affiliated with St Mary's Group of Hospitals, St Louis City Hospital, and Jewish Hospital, where he died May 10, aged 68, of carcinoma

Schlein, Julius, Tampa, Fla, Long Island College Hospital, Brooklyn, 1906, formerly a pharmacist, on the staff of the Unity Hospital, died May 7, aged 84, of uremia, arterio sclerotic nephritis, myocarditis, and coronary sclerosis

Schneck, Sereno Watson ♂ Mount Carmel, Ill, Northwestern University Medical School, Chicago, 1898, died April 21, aged 78

Schnitzer, Johann Otto, Wichita, Kan, University of Kansas School of Medicine, Kansas City, 1951, died April 12, aged 32

Scott, Zachariah James, Brownsville, Tenn, Kentucky School of Medicine, Louisville, 1891, served during World War I, on the staff of the Haywood County Memorial Hospital, where he died April 4, aged 89, of carcinoma of the lungs

Seaman, Benjamin Franklin, Altamonte Springs, Fla, Albany (N Y) Medical College, 1905, formerly on the staff of the Metropolitan Life Insurance Company Sanatorium in Mount McGregor, died April 6, aged 69, of acute coronary occlusion and arteriosclerotic heart disease

Sibila, Alvin Oscar ♂ Cleveland, Western Reserve University School of Medicine, Cleveland, 1917, served during World War I, member of the Academy of Medicine of Cleveland and the Cleveland Health Museum, for many years member of the city board of health, affiliated with St John's Hospital and the Fairview Park Hospital, where he died May 12, aged 60, of cerebral thrombosis

Siegel, Charles Milton ♂ Cincinnati, Marquette University School of Medicine, Milwaukee, 1926, member of the American College of Chest Physicians and the American Trudeau Society, instructor in medicine at the University of Cincinnati College of Medicine, on the staff of the Jewish Hospital, died May 11, aged 52, of rheumatic heart disease

Sleeper, Frank Warren ♂ Franklin, N H, Harvard Medical School, Boston, 1901, member of the Massachusetts Medical Society, died April 3, aged 81, of coronary thrombosis

Sleet, Joseph Allen, Tucson, Ariz., Kentucky School of Medicine, Louisville, 1903, died in the VA Hospital May 2, aged 72, of pulmonary emphysema

Smith, A Macrae Jr ♂ Bellingham, Wash, McGill University Faculty of Medicine, Montreal, Canada, 1938, served during World War II, died May 3, aged 43, of injuries received in an automobile accident

Switzer, David M ♂ Little Rock, Ark, University of Arkansas School of Medicine, Little Rock, 1908, served on the staff of the Baptist Hospital, died April 24, aged 86, of pneumonia

Tarpmian, Haroutune Asadour ♂ Fresno, Calif, American University of Beirut School of Medicine, Syria, 1914, on the staff of the Community Hospital, where he died April 30, aged 62, of cerebral hemorrhage

Toole, John Edward, Branford, Conn, Yale University School of Medicine, New Haven, 1920, member of the American Urological Association, fellow of the American College of Surgeons, at one time in charge of medical supplies for American Relief Administration in Russia, served during World War II, died April 19, aged 57, of coronary thrombosis

Turney, Lester Ferris, Windsor, Conn, Yale University School of Medicine, New Haven, 1902, town health officer; died in Hartford Hospital April 14, aged 75, of anterior myocardial infarction

Wagoner, Robert Henry ♂ Colburn, Ind, Medical College of Indiana, Indianapolis, 1903, past president of the Tippecanoe County Medical Society, served during World War I, affiliated with St Elizabeth Hospital and LaFayette Home Hospital in LaFayette, died April 29, aged 79, of coronary occlusion

Wahlen, John Albert ♂ Montebello, Calif, College of Medical Evangelists, Loma Linda and Los Angeles, 1924, member of the American Academy of General Practice, affiliated with White Memorial Hospital in Los Angeles, Garfield Hospital, Monterey Park, and the Beverly Community Hospital, died in the California Hospital in Los Angeles, March 27, aged 60, of bronchogenic carcinoma

Walker, Robert Irving, New Bedford, Mass, Boston University School of Medicine, 1914, served overseas during World War I, died in Truesdale Hospital, Fall River, March 12, aged 83

Walker, Theodore Lee, St Louis, University of West Tennessee College of Medicine and Surgery, Memphis, 1914, served on the staffs of the Peoples Hospital, St Mary's Infirmary, and Homer G Phillips Hospital, died April 30, aged 68, of myocardial infarction

Waterman, Isaiah John, Los Angeles, State University of Iowa College of Medicine, Iowa City, 1909, died March 31, aged 68, of atelectasis

Watkins, Otis Lee, Rustburg, Va, University College of Medicine, Richmond, 1907, for many years county coroner; served during World War I, medical examiner for the draft board during World War II, affiliated with Lynchburg General Hospital and Virginia Baptist Hospital, died in the Memorial Hospital April 28, aged 68, of cerebral hemorrhage

Werner, Robert Frederic, Downey, Calif, University of Minnesota Medical School, Minneapolis, 1927, died April 29, aged 52

Willis, Palestine T, Beaver Dam, Ky, Louisville (Ky) Medical College, 1904, died April 9, aged 79, of coronary thrombosis

Wilson, Harry Edmond ♂ Port Orchard, Wash, College of Physicians and Surgeons, Baltimore, 1905, served on the staffs of the Harrison Memorial and Puget Sound hospitals in Bremerton, died April 4, aged 74, of coronary thrombosis

Young, Jack Rufus, Florala, Ala, Tulane University of Louisiana School of Medicine, New Orleans, 1946, served during World War II, died April 23, aged 31, of leukemia

GOVERNMENT SERVICES

ARMY

Dr Smadel Honored—The University of Chicago recently presented the Howard Ricketts Medal to Dr Joseph E Smadel, scientific director of the Army Medical Service Graduate School, Washington, D C, for his work with antibiotics in the treatment of typhus Dr Smadel has been chief of the department of virus and rickettsial diseases since 1946 and technical director of research (communicable and parasitic diseases) since 1950 He is also visiting lecturer in virology at the University of Maryland School of Medicine, Baltimore He has been director of the commission on immunization, Armed Forces Epidemiological Board, and a member of the virus and rickettsial study section, United States Public Health Service, since 1946 and a member of the committee on virus research and epidemiology and research fellowship in virology, National Foundation for Infantile Paralysis, since 1948 Dr Smadel holds the U S Army Typhus Commission Medal, the Gordon Wilson Medal, and the Exceptional Civilian Service Award

Personal.—Major Gen William E Shambora, Chief Surgeon, U S Army, Far East, was honored April 9 as one of the eight alumni chosen by Georgetown University Alumni Association for the 1953 John Carrol Distinguished Service award In the absence of General Shambora, the Surgeon General designated Col Floyd L Wergeland to receive the award for the general.

NAVY

Course for Reserve Officers in Field Medicine—A two week course in field medicine for inactive reserve medical department officers of the 11th, 12th, and 13th Naval Districts will convene at the marine barracks, Camp Joseph H Pendleton, Oceanside, Calif, Aug 17, 1953 Practical instruction in medical matériel logistics, preventive medicine in the field, professional treatment in emergencies, and medical organization with fleet marine units are included In addition, the trainee will receive practical instruction of a military nature, including the maintenance and use of small arms, items of individual field equipment, and practical march and bivouac routines Inactive naval reserve medical corps, medical service corps, and hospital corps officers residing in the 11th 12th, and 13th Naval Districts who desire to attend this course should submit requests to the commandant of the home Naval District at the earliest possible date Bachelor quarters will be available, and working uniform is required Attendance will not in any way, increase the possibility of involuntary recall to active duty Eligible officers may attend this course on active duty with training orders in a pay status

PUBLIC HEALTH SERVICE

New International Vaccination Certificates.—The new International Certificates of Vaccination form, which will enable international travelers to complete immunization requirements more expeditiously, will be ready for use about July 1, 1953 This form supersedes the present International Certificate of Inoculation and Vaccination, PHS 731 (FQ) and provides an official record of compliance with vaccination requirements, acceptable to all nations governed by the International Sanitary Regulations, which went into effect last October It contains vaccination certificates for smallpox yellow fever, and cholera, and space to record other immunizations At present vaccination against typhus and plague is not required

With the new form, a recording of the results of the smallpox vaccination is no longer necessary, except in cases of

primary vaccination In cases of revaccination the smallpox certificate becomes valid immediately, whereas previously a 14 day wait was required The cholera certificate in the new form becomes valid six days after the first injection The old form required that the series be completed The type of vaccine being used in this country provides maximum protection only after the second injection, and the attention of international travelers will be called to the advisability of taking this second shot The yellow fever vaccination certificate in the new form is valid for six years

Smallpox and cholera certificates will be certified by local health officers as in the past, however, health officers must use their official stamps, if they do not have one, they should prepare a special stamp for the purpose of certifying these documents On the new form the signature of the health officer is not necessary, and signature alone is not valid Yellow fever vaccination certificates issued in the United States are valid in international travel only when the inoculation is obtained from a yellow fever vaccination center designated by the U S Public Health Service

The Public Health Service plans to distribute the International Certificates of Vaccination with passport application forms through clerks of the court and from passport agencies located in Boston, New York City, San Francisco, New Orleans, Chicago, and Washington, D C, beginning about July 1 Thus, prospective travelers will have more time for immunizations than under the present system, which provides the form upon issuance of a passport Persons going into countries that do not require a passport may obtain the form from local or state health departments or from facilities of the Public Health Service The certificate may be obtained also from the Superintendent of Documents, Government Printing Office, Washington 25, D C, at a cost of \$05, or \$1 50 for 100 copies delivered to the same address Organizations wishing to print their own certificates must obtain the written permission of the Division of Foreign Quarantine, Epidemiology and Immunization Branch, Public Health, Washington 25, D C

The old form will be accepted in international travel until the expiration date of the recorded vaccinations Agencies having a supply of this form may continue to distribute them until their stock is exhausted When the old form is used its specifications with regard to smallpox vaccination must be complied with, but the new regulations with regard to yellow fever and cholera certification may be applied Under the new regulations, the Department of Defense will issue its own certificate to military personnel on active duty, however, military dependents must continue to use the new International Certificates of Vaccination

Superior Service Award—Dr Henry M Freidman of the Public Health Service has just received the Superior Service Award of the Department of Health Education, and Welfare The award, the highest given by the department, was presented by Secretary Oveta Culp Hobby Dr Freidman, who is retiring after more than 45 years of service, is a medical supervisor on the staff of the U S Foreign Quarantine Service, Port of New York Secretary Hobby said, "He has amply earned the gratitude and esteem of his countrymen As a Foreign Quarantine Officer, he has worked with his fellow officers in the vital job of guarding our shores against disease and pestilence It is no exaggeration to say that our country is safer and healthier because of the skill and devotion of such men" Dr Freidman practiced medicine near his home on the Lower East Side of New York until 1907, when he received an appointment with the U S Public Health Service For many years, he has been a leader in developing programs for the care of dependent children and is at present, director of medical care for the Jewish Child Care Association of New York

Laboratory Courses—Schedules of laboratory refresher training courses to be given at the Venereal Disease Research Laboratory, Chamblee, Ga., during the fiscal year, July 1, 1953, to June 30, 1954, have been announced as follows

Dates	Courses	Duration Weeks
Aug 17 18 1953	Serology of syphilis	2
Sept 17 28 1953	Serology of syphilis	2
Oct 5-16, 1953	* Management and control of syphilis serology by the regional laboratory	2
Oct 19-23, 1953	† Laboratory diagnosis of venereal disease	1
Oct 26 to Nov 6, 1953	Serology of syphilis	2
Nov 9-20 1953	Preparation and standardization of cardiolipin antigens used in serologic tests for syphilis	2
Dec 7 18 1953	Serology of syphilis	2
Jan 11 22 1954	Serology of syphilis	2
Feb 8-19 1954	Serology of syphilis	2
March 8-19 1954	Serology of syphilis	2
April 5-16, 1954	Serology of syphilis	2
May 3-14 1954	Serology of syphilis	2
May 17 28 1954	Preparation and standardization of cardiolipin antigens used in serologic tests for syphilis	2

* This course designed for assistant laboratory directors and senior laboratory staff members includes review of interlaboratory training programs regional laboratory evaluation studies laboratory inspection procedures demonstration of antigen check testing and control serum preparation

† This course is designed for P H S physicians laboratory directors and assistant laboratory directors

Correspondence should be sent to Director, Venereal Disease Research Laboratory, P O Box 185, Chamblee, Ga

Dr Wilder Retires—Dr Russell Wilder, director of the National Institute of Arthritis and Metabolic Diseases at Bethesda, Md., brought to a close a 45 year career when he retired, for reasons of health, on July 1. An internationally known nutritionist and authority on diabetes, Dr Wilder became the first director of the National Institute of Arthritis and Metabolic Diseases shortly after its creation in 1950. He directed an intensive research program against arthritis, rheumatism, and metabolic diseases that included laboratory research at Bethesda, administration of grants in support of research and training in nonfederal institutions, and preparation for clinical investigations in the new clinical center of the National Institutes of Health that just admitted its first patients.

Before serving with the arthritis institute, Dr Wilder was with the Mayo Foundation and Clinic, Rochester, Minn., from 1919 to 1950. In 1940, he was chairman of the committee on medicine of the National Research Council in which he organized the food and nutrition board. Later he served as chief of the civilian food requirements branch, War Food Administration. He was a special consultant to the research facilities planning committee of the National Institutes of Health in 1950. For 20 years he was a member of the American Medical Association's Council on Foods and will be remembered for his part in bringing about the general acceptance and use of enriched white flour and bread. During World War I he served in the Army as a medical officer. Dr and Mrs Wilder will return to their home in Rochester.

Gordon to Head National Leprosarium—Dr Eddie M Gordon has been appointed Medical Officer in Charge of the U S P H S Hospital (National Leprosarium), Carville, La. Dr Gordon succeeds Dr Frederick A Johansen, who retired June 1 after 29 years of service at Carville. Dr Gordon comes to Carville from Chicago, where he has been in charge of the local U S P H S Hospital. The retiring medical officer, Dr Johansen, participated actively in the evolution of the modern sulfone therapy and later guided the installation and organization of the hospital's community activities and rehabilitation services. He is widely recognized as an authority on leprosy.

Personal—Dr Myron D Miller has been appointed medical officer in charge of the U S Public Health Service Hospital, Seattle, effective Aug 1, succeeding Dr William W Nesbitt, who died suddenly on May 7.—Dr David J Zaugg has been appointed medical officer in charge of the U S Public

Health Service Hospital, Chicago, effective July 1, succeeding Dr Eddie M Gordon, recently assigned to head the U S Public Health Service Hospital (National Leprosarium) at Carville, La.

VETERANS ADMINISTRATION

Vacancies for Occupational Therapists.—The Veterans Administration has many vacancies for occupational therapists and physical therapists at VA centers and hospitals throughout the United States. These vacancies are at grade GS-5, with the salary of \$3,410 to \$4,160 per annum, and grade GS-7, with the salary of \$4,205 to \$4,955 per annum. Persons thus employed enjoy excellent employment conditions and also have an essential part in aiding their government. Further information may be obtained from Mr Jerome J Deutsch or Mr Walter J Shanley by calling Main 5 7400, extension 369 or 371, Brooklyn 1, or from the Executive Secretary, Committee of Expert Examiners, Veterans Administration, Washington 25, D C.

Personal.—Dr Alexander W Kruger of Washington, D C., has been appointed manager of the Veterans Administration Hospital at Manchester, N H., succeeding Dr Bernard L. Allen. Dr Allen has been transferred to the new VA Hospital at West Haven, Conn. Dr Kruger was born in Russia but was educated in the United States. He practiced medicine in New York City nine years (1925-1934), and from 1948 through 1951 was general medical superintendent, Department of Hospitals, City of New York. He served as a lieutenant commander in the Navy Medical Corps from June, 1944, to November, 1945.—The Veterans Administration announces the appointment of Dr Stewart T Ginsberg of Marion, Ind., as manager of the new 956 bed neuropsychiatric hospital nearing completion at Pittsburgh and of Dr Louis M Hohman of Indianapolis as manager of the 200 bed general medical and surgical hospital at Clarksburg, W Va.

MISCELLANEOUS

Atoll Research Program.—The Coral Atoll Research Program sponsored by the National Academy of Sciences National Research Council, with financial assistance from the Office of Naval Research, is being continued with the despatch from Honolulu of three scientists to Ifaluk Atoll in the Western Carolinas, in September, four more men will go to Ifaluk. The field work, which will be concluded in November, will parallel the pattern of ecologic investigations that have been made at the atolls of Arno in the Marshalls, Onotoa in the Gilberts, and Raroia in the Tuamotus as part of a five year program of basic research. Results will be correlated with other atoll research. This program is also associated with an atoll project of the six government South Pacific Commission concerned with problems affecting the economy of atoll peoples in Pacific areas administered by Australia, France, New Zealand, Netherlands, United Kingdom, and the United States. Ifaluk is a small atoll about 400 miles south of Guam, with a land area of one half a square mile, and with 250 inhabitants that have had little contact with other islands. In 1948, E G Burrows and M E Spiro spent several months there under a Pacific Science Board project supported by the Office of Naval Research as part of a Coordinated Investigation of Micronesian Anthropology. Dr Burrows, who is professor of anthropology at the University of Connecticut, will return to Ifaluk as the leader of this summer's team.

Foreign Scientific Visitors.—The National Academy of Sciences National Research Council, Office of International Relations, is receiving an increased amount of information on the travel plans of foreign scientists and engineers who plan to visit the United States, and it has arranged a list of these visitors, together with their itinerary, in order that any group or society desiring to contact them for the purpose of arranging lecture engagements or to visit their institutions may do so. Further information may be obtained by writing to the above office at 2101 Constitution Ave., Washington 25, D C.

FOREIGN LETTERS

DENMARK

Cytological Tests for Lung Cancer.—At the Thoracic Surgery Department of the Copenhagen City Hospital of Øresund, directed by Dr Tage Kjaer, much work has been done recently in diagnosis of lung cancer by the microscopic examination of presumptive tumor cells found in the bronchi and sputum. Valuable pioneer work has been done in this field by Dr H. H. Wandall, whose study, published in 1944, showed that tumor cells could be found in 84% of patients suffering from primary bronchogenic cancer. Commenting on this study in *Nordisk medicin* for May 8, 1953, Dr J. Iversen emphasizes the importance of Wandall's investigations because they included a large number of patients who were not suffering from malignant disease of the lungs and, therefore, who served as controls. Dr Iversen's study from the above mentioned Thoracic Surgery Department concerned 124 cases of primary bronchogenic cancer, in 57 of which (46%) malignant cells were found in the sputum or bronchial secretion. Among 629 patients suffering from nonmalignant disease, there were 9 in whom the cytological test yielded an erroneous diagnosis (1.4%) of malignant disease. Five of these nine mistaken diagnoses were made in the first 200 patients examined and the other four among the some 700 patients examined at a later date. These figures suggest that the already low error rate of 1.4% could be further reduced by the experience gained by practice. The rate of correct diagnoses can be increased by repeating the test, but unfortunately even a trained cytologist needs about half an hour to complete a thorough scrutiny of the cells to be examined in a given case.

Dr Iversen has also undertaken a study of 250 verified cases of bronchogenic cancer treated in his hospital between December, 1948, and July, 1952. In all these cases either the sputum or the bronchial secretion or both were examined cytologically. In 152 cases squamous cell carcinoma was diagnosed. The remaining 98 cases represented other forms of carcinoma. The cytological test was positive in 76 of the squamous cell cases (50%) and in 110 of the total of 250 cases (44%). Dr Iversen concludes that the cytological test is of diagnostic value, a matter of great importance in operable cases of bronchogenic cancer.

Therapeutic Studies of Arterial Hypertension.—In several Danish hospitals much attention is being paid to the medical treatment of hypertension. At the Medical Department of the Frederiksborg County Central Hospital, Dr Vagn Rønnow-Jessen and Dr Viggo Bech have given an extensive trial of hexamethonium to 20 patients suffering from severe arterial hypertension. At first the drug was given orally in the form of the bitartrate of hexamethonium, 2 tablets of 0.25 gm each being given three times daily, the dosage being gradually increased to 16 tablets daily. Only two of the eight patients treated in this way responded satisfactorily. The drug was next given subcutaneously as well as orally. A 10% solution of the bromide of hexamethonium was then given twice a day, the initial dose of 15 mg being gradually increased by 5 to 10 mg after every other injection. This increase of dosage was continued till each injection was followed by a suitable fall of blood pressure lasting a few hours. Of the 20 patients treated by this combined oral and parenteral mode of administration 2 discontinued treatment within three weeks and a third after three months. The remainder have continued this treatment for several months. Side-effects included severe constipation, from which nearly all the patients suffered at the beginning of the treatment. Giddiness due to a fall of the blood pressure usually passed off after a few weeks, partly because the dosage most suitable for each patient had been discovered by them, there was, however, one patient who discontinued the treatment after a fortnight on account of

giddiness. In as many as 11 cases blurred vision and difficulties on reading were experienced, but they were transitory with only one exception. On account of these and other drawbacks to this treatment, it seems to be indicated only for patients seriously handicapped by hypertension. On the other hand, it is admitted that hexamethonium marks a significant epoch in the treatment of hypertension. Its administration should always be started in hospital where the suitable dosage can be established and the reactions to it closely controlled.

From the Medical Department of the Aarhus County Hospital comes a report by Dr Poul Bechgaard and Dr Leif Paulsen on tests they have carried out with Hydergine (methanesulfonates of dihydrogenated ergotoxine alkaloids) whose beneficial action on hypertension has recently been reported in Swiss and German publications. Among the 34 patients given parenteral injections of this drug were 14 who responded with a fall of blood pressure, while a slight effect was obtained in 12 and none in 8. As compared with hexamethonium, Hydergine would seem to be definitely less effective. In *Ugeskrift for Læger* for April 16, 1953, which contains the reports referred to above, tables and graphs are given illustrating details of the tests to which the patients were subjected when treated in hospitals.

Births, Marriages, and Deaths.—A government report on movements of the population in 1951 shows what profound changes can take place in a comparatively short time with regard to such acts as marriages and divorces. For example, in the five year period 1941-1945 there were only 4,868 divorces yearly in Denmark. In the next five year period this figure had jumped to 7,084 yearly. In 1951 it was lower, with only 6,681, a figure corresponding to 18% of the marriages in the same year. The average duration of marriage before divorce was 10 years, but one third of the divorces followed marriages of less than five years' duration. In the five year period 1925-1930 only 4.7% of the men and only 3.5% of the women marrying each year in this period were divorcees. The corresponding percentages in 1951 for men and women were 13 and 12, respectively. In this year the average age of hitherto unmarried persons at the time of marriage was 27 years for men and 24 years for women. As was to be expected, the men who married after the age of 60 greatly outnumbered the women marrying after this age (562 men to 166 women). In 1951 the number of mothers giving birth to twins was 1,008, and 10 gave birth to triplets. Up to 1948 the percentage of infants born from year to year out of wedlock was remarkably constant 10%. In 1951, the number of illegitimate infants constituted only 7% of all the births.

Operations for Hemorrhoids Compared.—In the 16 year period 1935-1950 a total of 235 patients were operated on for hemorrhoids at the Bornholm County Hospital, Milligan's operation being performed in the first half of this period and the Jørgen Jensen modification of Whitehead's operation in the second half. Recently Dr Mogens Felbo and Dr Ole Kofod, who are attached to this hospital, have succeeded in contacting 173 of these patients, 98 of whom underwent the modified Whitehead operation and 75 the Milligan operation. The percentage of patients expressing satisfaction with the operation was much the same for the two groups (82% Whitehead and 81% Milligan). But while 26% of the patients who underwent the Whitehead operation complained of post-operative rectal hemorrhage, only 17% of those having Milligan's operation did so. The Whitehead operation proved inferior to the Milligan technique also with regard to the recurrence or relapse rate, which was 14% for the former and only 8% for the latter.

The Late Professor Bock.—Johannes C. Bock, the father of experimental pharmacology in Denmark, was born in Copenhagen in 1867. After qualifying as a physician in 1893, he worked for two years at the Physiological Institute under

Prof Christian Bohr, who did much to shape his subsequent career. At this institute he carried out studies on the physiology of respiration. After working in 1896 under Schmiedeberg at Strasbourg, Bock returned to Denmark where he studied at the University Pharmacological Institute in the period 1897-1900. He was only 33 years old when he was appointed professor of experimental pharmacology, and during the following decade he published a series of studies, many of which are still regarded as classics. In later years original research was, to a certain extent, set aside by the claims made on Bock as an administrator and organizer, and it was largely due to him that the school of dentistry, to which he was attached as a teacher, came to be reorganized. From 1907 to 1912 Bock was in charge of this school. In the period 1909-1939 he was adviser to the government in pharmacological problems, including forensic toxicology. Between the two world wars he undertook intensive research and educational studies of chemical warfare, and he did much to prepare the way for combating gas warfare. After his retirement as professor in 1938, Bock continued to live a very active life, and during the occupation of Denmark by the Germans he traveled widely, giving lectures on civil air defense. Painting and gardening were among his hobbies. In the summer of 1952 a motor car accident crippled him badly, and he was still suffering from its effects when he died early in 1953.

ITALY

Supracondylar Fractures of Humerus—Professor Sanzone read a paper on supracondylar fractures of the humerus at the meeting of the Medical and Surgical Society of Taranto, Jan 27. Describing this specific type of inferior epiphyseal fracture of the humerus that is characteristic of infancy, he discussed the progressive phases of this ossification in infancy and puberty. Among the various anatomic elements that contribute to the causation of the fracture are the epitrochlear muscles, especially the round pronator.

The modern method of reduction aims almost systematically at the closed reduction. Great consideration should be given to the technique of stretching the epitrochlear muscles so that the distal fragment may accomplish its anatomic alignment. The radiological picture is very important for differentiation from other types of local fractures.

Professor Sanzone said that the sequela of Volkmann's paralysis should not be ascribed to the system of immobilization used but rather to failure in reduction of the fracture. In making the circular plaster bandage, it is advisable to open the anterior groove soon after its solidification, making the fixation rely on the back splint. Functional restoration depends mainly on early reduction.

In the discussion that followed, Professor De Rosa said that use of the plaster bandage is not devoid of dangers if the topography of the fracture is considered. Therefore, he believes it is wise to hold the reduction at first with a temporary bandage that can later be transformed into a permanent bandage. As for closed reduction, Professor Buonsanti favors the maneuver of flexion of the forearm with leverage on the wedge of Lorenz. This technique, which consists of traction and countertraction, can be performed without any assistance. In the distention of the muscles the forearm is bent as much as possible to insure the greatest possible contact between the stumps and the formation of bone spurs by the diaphysary stump is avoided. These spurs can cause imperfect function because of para articular block. He also agreed on the necessity of early reduction of the fracture, since this is the only technique capable of assuring good results.

Medical and Surgical Society Meeting—On Dec 14, 1952, the medical and surgical society of the Romagna region held a meeting at which many papers were read.

Diaphragmatic Hernia—Drs Vazzocchi and Pezzani discussed diaphragmatic hernia. One case was presented, and the etiology, diagnosis, and therapy were discussed. Professor Sighinolfi said also that diaphragmatic hernia on the right side seems to be less common than on the left and that from

his personal experience he could recall only one case with hernia on the right. This patient was a child in whom a segment of the transverse colon had herniated into the thoracic cavity through a narrow hole in the right side of the diaphragm and had afterward become strangulated and gangrenous. The young patient died. In addition to the correct differentiation of diaphragmatic hernias as fetal and embryonal, with and without a hernial sac, respectively, one must keep in mind the possibility of an eventration in which the diaphragmatic muscle is distended and relaxed and has atrophic fibers.

Carcinoma of Ampulla of Vater—Drs Bazzocchi and Pezzani discussed also a rare case of carcinoma of the ampulla of Vater in a 25 year old man in whom the symptomatology had begun when he was 11 years old and who had a severe and obstinate form of icterus. The tumor was removed by the transduodenal approach and he has been clinically cured for many months.

Professor Sighinolfi, the chairman, intervened and, since the speakers had mentioned the finding of an obstructed gall bladder, he thought a note of comment was needed. He said that the failure of the gallbladder to fill up after oral administration of a contrast medium cannot be interpreted as indicating obstruction of the gallbladder. More reliable data may be obtained after administration, a few hours later, of twice as much contrast medium. X-ray examination of the gastrointestinal tract with accurate visualization of the duodenal loop is indispensable for a correct diagnosis. Dr Jasonni believed that the distension of the gallbladder in the case under discussion should be considered an important element in the differential diagnosis, it could make one reject the calculous nature of the syndrome and suspect its neoplastic nature.

Fractures of Clavicle—Professor Beluffi, from Pesaro, discussed open treatment of fractures of the clavicle. Since the closed methods of reduction and immobilization of the fractures of the clavicle are not well tolerated or give imperfect results and since, on the other hand, the modern methods of transskeletal traction require complex apparatus, he believes that in most cases of fracture of the clavicle open reduction should be used. The surgical treatment does not present technical difficulties nor dangers for the patient. It gives a perfect reduction in almost all cases. Moreover, it guarantees a solid and aesthetic callus with the best restoration of function. This method should be used not only in transverse fractures but also in oblique fractures where there is a third fragment. The fragment should never be removed but should be reduced to its proper place without damage to the muscle connections to avoid the danger of a pseudoarthrosis. The surgical technique should be individualized to the anatomic lesions of each case. In most cases the suture or cerclage with chromic surgical suture, nylon, or metal wire is sufficient. Fixation with Kirschner wire is indicated in some cases and is a good method, in some instances Professor Beluffi obtained favorable results with osteosynthesis with small pieces of vitallium.

In the discussion that followed, Professor Borellini agreed with Professor Beluffi that no closed orthopedic treatment gives a perfect reduction of some fractures of the clavicle. Among the closed methods the skeletal traction according to the technique of Filippi deserves special mention, since it gives good anatomic and functional results. As for open reduction, he believes that the best method is fixation by the retrograde intramedullary approach with Kirschner wire.

Professor Sighinolfi observed that most sequelae of fracture of the clavicle occur in patients treated by physicians working for accident insurance companies. As a rule, however, the residual deformities do not markedly affect function. In the reductions that he obtained by means of cerclage with a silver wire, there was sometimes delayed formation of bone callus, in other cases there was instead abundant callus formation. He obtained very good reductions with the apparatus that was proposed by Cornacchia.

Prostatectomy Techniques—Interesting papers on the various methods of prostatectomy were read. Dr Buccì discussed the indications for prostatectomy by Hryntschak's method, although he did not minimize the advantage of Millin's technique.

Professor Bazzocchi thought that the criticism against Millin's method that a suppuration of Retzius' space may occur is unsound, since by this route even an acute prostatic abscess can be checked. Nevertheless, the possibilities and the good results of the transvesical approach should not be underestimated.

Professor Babini reported that he had performed many prostatectomies according to Millin's method, but had now reverted to Freyer's one stage method. The patients have recovered in almost the same length of time. He does not emphasize the danger of hemorrhage because he has never had an alarming case of hemorrhage, although he does not pack the cavity left by prostatectomy.

Professor Beluffi observed that for some time there has been an increasing criticism of retropubic extravesical prostatectomy by Millin's technique and a return to one stage transvesical prostatectomy. The method proposed by Hryntschak and described by Bucci is a variant of this. He has never used it and therefore does not know its advantages, but for some time his former enthusiasm for Millin's method has been decreasing and he has restricted its use in favor of transvesical methods. Of these, he prefers the one described by Mingazzini.

Bronchial Tumors—Professor Sighinolfi discussed some clinical and roentgenologic aspects of bronchial tumors. First, he reported some cases of pulmonary tumors, from which he showed serial roentgenograms that demonstrated their slow evolution. Two of the tumors deceived him because the initial radiological manifestations could have been interpreted as localized tuberculous processes. Three other cases were interesting because of a picture of atelectasis caused by the initial localization of the tumor in the main bronchus. In two cases the cancer was demonstrated directly by bronchography, in one case good results were obtained with early operation. In the third case, in which the roentgenograms indicated atelectasis of the lower lobe, bronchoscopy revealed a circumscribed mass that partially occluded the lumen of the bronchus of the lower lobe of the right lung and that was diagnosed as Jackson's adenoma. Diathermic coagulation of the lesion gave such good results that the patient's condition returned to normal.

The discussion confirmed the difficulty of a correct diagnosis, which is sometimes impossible. In view of the statistical data concerning the undoubted increase in the rate of pulmonary tumors, every effort should be made to obtain as soon as possible a correct diagnosis so that the latest surgical techniques may be used successfully.

MEXICO

Influenza Epidemic in Mexico.—The world wide epidemic of influenza of 1919 included Mexico, where a great number of persons were affected. There was a high mortality rate and a high incidence of neurological complications of the meso-encephalic type. The epidemic was severer in certain geographic areas such as the state of Michoacán. Since then no true cases of influenza had been observed in Mexico until January of this year, when, concurrently with the European and North American epidemics, an outbreak occurred. The epidemic was concentrated mainly in the large cities such as Mexico City, Guadalajara, Puebla, Monterrey, San Luis Potosí, and León. Undoubtedly the incidence was highest in Mexico City, where at least a third of its 3 million inhabitants were affected.

In contrast to the 1919 epidemic, however, the 1953 outbreak was noted for its mildness. There were no deaths directly attributable to it, and hemorrhagic manifestations, which were very common in 1919, occurred infrequently, with epistaxis being observed in a few cases. Finally, another sign of the mildness of the epidemic was its short duration, since it had disappeared completely at the end of five weeks.

The Department of Public Health, in its hospitals and other medical attention centers, and the Seguro Social (Department of Social Security for Workers) put into practice every measure

available to decrease the severity of the epidemic. Antibiotics were distributed free of charge to many patients with complications. The following recommendations were made: 1 Patients should be isolated during the acute period. 2 They must not resume ordinary activities until the danger of complications have disappeared. 3 Nose and throat exudates of the patients, as well as all objects contaminated by their excretions, should be disinfected. 4 Crowded places should be avoided as much as possible. 5 Concentration of patients in homes, hospitals, or other institutions, for medical care should be avoided, in order to prevent the appearance of complications, particularly pneumonia. 6 As a general recommendation, it is better for the patients to be under medical care with adequate nourishment.

Second Assembly of Universities.—The second assembly of Mexican universities took place last February, in the colonial city of Guanajuato. Twelve universities and 14 institutions of higher learning were represented, most of them by their rectors, presidents, or directors. The rector of the National University of Mexico was elected president of the assembly and the rector of the University of Guanajuato, which was the host institution, vice president. The following general decisions were made at the meeting: (a) Every candidate to the preparatory schools (which correspond to the last year of high school and to the first of college of the North American system) will be subjected to a preliminary (selective) examination, and admission will be granted only when the results meet certain requirements. (b) To date the program of the preparatory schools has varied according to the type of professional studies chosen by the student, which means that he has been compelled to choose his profession when he entered preparatory school. It was decided that there will be a single program for the preparatory schools that will be followed by all students, without regard to the professional studies they follow afterwards. (c) A preliminary proposal was made to extend the preparatory school course to three years, adding one year to the present curriculum. (d) To a certain extent the courses of the preparatory schools will also be unified. They will be of four types: (1) courses in the sciences and humanities, (2) courses in aesthetic culture, (3) training activities and (4) nonacademic activities. There will also be some elective courses. Several commissions were formed to continue the study, on a permanent basis, of diverse problems that became evident in the course of the discussions and to prepare the agenda of the next assembly of universities.

Congress of Tuberculosis and Silicosis.—The Fifth National Congress of Tuberculosis and Silicosis was formally inaugurated on Jan 25 in Guadalajara, at the auditorium of the medical school. The meeting, which was organized by the Sociedad Mexicana de Estudios sobre Tuberculosis y Enfermedades del Aparato Respiratorio (Mexican Society of Studies on Tuberculosis and Respiratory Diseases), was attended by more than 200 delegates from Mexico and other countries, including such distinguished international specialists as Drs Maxwell Chamberlain, Oscar Auerbach, and Leo Eloesser.

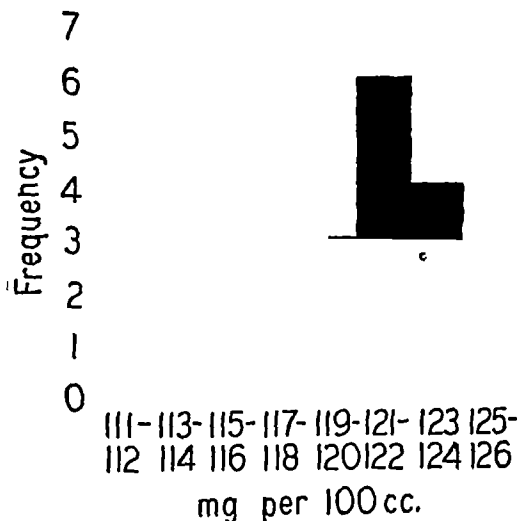
The inaugural lecture by Dr Alfonso Aldama y Contreras was entitled "The Minimum Program for the Campaign Against Tuberculosis in Mexico." The following papers were read in the plenary sessions: "A Critical Evaluation of the Economic-Social Protection of the Tuberculous Patient in Our Country," by Dr Ismael Cossio Villegas and colleagues. "Incidence of Silicosis in Mexico," by Dr Ventura Aguirre of the Medical Department of the Secretary of Labor and Social Security, "A Study of Circulation in the Lungs in Silicosis," by Dr Enrique Staines and co-workers, "Present Status of Surgical Treatment for Pulmonary Tuberculosis," by Dr Alberto Ladrón de Guevara and co-workers, "Present Status of Medical Treatment for Pulmonary Tuberculosis," by Dr Rodolfo Limón and co-workers, "Congenital Lung Diseases," by José Nava González, "Present Status of Cardiovascular Surgery in Mexico," by Dr Clemente Robles, and "Cystic Lung Disease and Associated Pathological Changes," by Dr Roberto Mendiola. Finally, Dr Pedro Alegría, president of the meeting, insisted that the federal government should be responsible for every problem related to the campaign against tuberculosis in Mexico and suggested that special institutions be created for that purpose.

CORRESPONDENCE

ERRORS IN LABORATORY PROCEDURES

To the Editor—Surveys of laboratory accuracy (Shuey, H. E., and Cebel, J. *Bull. U. S. Army M. Dept.* 9799, 1949) have given adequate proof that too many laboratory reports are in such gross error that they are not only misleading but, at times, a cause of serious errors. It is not our purpose to delve into the whys and wherefores of such conditions but, rather, to discuss the fact that, assuming every laboratory procedure were perfectly performed, there would still be error. If this error were small enough to be unimportant in every instance then it would be of academic interest. Unfortunately, however, in many instances this error is larger than might be desired, because, through no fault of the laboratory, it is beyond reasonable control. This being the case it behooves the physician to gain at least a superficial understanding of the problems involved.

In measuring a discontinuous variable (the number of deaths occurring in a certain number of cases of smallpox), if it is assumed that the actual cause of death in each case was smallpox and that we can count correctly then there can be no error in measurement, for deaths can only occur in discrete intervals of 1, 2, 3, 4. Continuous variables, on the other hand, do not add values at discrete intervals but, rather,



can add an infinite number of values. The measurement of continuous variables is always subject to error; it is impossible to obtain an exact measurement of this type. It is impossible, therefore, to determine the exact value of a blood glucose level and, in this sense, all clinical laboratory procedures that measure continuous variables are in error. This error is relative and is important only when it becomes too large. For example, it is theoretically possible to measure a blood glucose level so accurately that it could be expressed as 100.345 mg per 100 cc, with the knowledge that the last significant figure may be in error by as much as one unit. It is improbable that anyone would care very much about such accuracy. It would be of some concern to the physician, however, if he were told that a reported value of 100 mg per 100 cc might be off as much as 50 mg per 100 cc.

It is important at this point to distinguish between the terms accuracy and precision as they are used in the modern statistical approach. A test is considered accurate if it gives a true result. For example, the Folin-Wu method of blood glucose determination is not very accurate, since a result of 100 mg per 100 cc contains approximately 20 mg of reducing substances other than glucose per 100 cc. Certain other available methods are more accurate because most of the extraneous reducing substances are not measured. This does not mean, however, that a relatively inaccurate test is necessarily of no

value to the clinician. The reducing substances other than glucose measured in the Folin-Wu glucose method fluctuate relatively little, and the physician merely becomes accustomed to interpreting the results in the light of a false normal range. Precision, on the other hand, is probably of greater importance. It is the degree of variation or reproducibility of results obtained by a method, such as the scatter of results if many aliquots of one unknown are tested. The less the variation, the greater the precision is said to be. Accuracy and precision are completely independent of each other.

As an example of the variation of results obtained when a test is repeated on the same sample, the figure shows the distribution of the results of 30 analyses for blood sugar on a pooled blood sample, run by the Folin-Wu method.

The average of the results is 118.6 mg. per 100 cc. and is the best estimate available of the correct value for the method used. It is possible, by relatively simple statistical analysis, to determine limits on each side of this average that would include approximately 95% of all determinations made by the same laboratory on the particular unknown sample. These limits also represent an index of the precision of the method and can be expressed in terms of mg. per 100 cc. or in terms of per cent of the answer itself. In the example above, it was found that the precision of the Folin-Wu method at 120 mg. per 100 cc. was approximately ± 10 mg. per 100 cc., or $\pm 8.2\%$. It should be noted that these limits would encompass the correct answer in only approximately 95% of cases and, therefore, that one correct answer in 20 might fall outside these limits. A report of a blood glucose level of 106 mg. per 100 cc. does not mean that the exact level is actually 106; in fact, the probability is that it is not 106. What it does mean is that the correct answer for the method used is probably (95% confidence) within 10 mg. of the reported figure.

The same situation exists in all clinical chemical analyses. Ideally, all reports should be given with an indication of the error associated with them. Perhaps this would be rather impractical in clinical medicine, although this procedure is gaining favor, but it is important that physicians think in these terms. Error is critically important to the physician only when it becomes too large. The control of error within clinically permissible limits is the responsibility of the laboratory. This is not always a simple task. In most chemical tests an error of $\pm 10\%$ is not critical, but certain exceptions exist. It is difficult, for example, to perform a calcium determination on serum by most of the procedures in use with an error less than $\pm 5\%$. This means that the true value of a reported result of 9 mg. per 100 cc. may lie anywhere between 8.5 and 9.5 mg. per 100 cc. This is not the fault of the laboratory.

There are a number of factors that contribute to this unavoidable error. Every step in a chemical procedure cannot be reproduced exactly and contributes its share of error to the total, over all error of the test. For example, among the sources of error in the Folin-Wu glucose determination are measuring the blood, measuring the reagents used in preparing the protein-free filtrate, measuring the protein-free filtrate, the copper reduction step, reading the color density, and the variation of the reagent blank (Henry, R. J., and others. *Am. J. Clin. Path.* 23:285, 1953). It is true that the over-all error can be reduced by more exacting technique in one or more of these steps. Reduction of the error at one or two steps, however, has relatively little effect on the over-all error. To reduce materially the error at all steps would involve considerably more work, which would increase the cost of the test to the patient. Actually, there would be little point in reducing error of a test that is already sufficiently precise for clinical purposes. In certain cases, however, in which greater precision is desirable, it is impractical or impossible at the present time to accomplish this.

In the field of hematology, the unavoidable errors are not sufficiently appreciated. A physician receives a report on an erythrocyte count of 3,800,000, places the patient on iron therapy, repeats the count a week later, and receives a report

of 3,400,000. At this point, the laboratory is apt to be blamed for poor work. Actually, the laboratory may well be correct in both counts, and, yet, the true counts may have been 3,400,000 and 3,800,000 respectively. The reason for this is that, if one follows the accepted technique of counting five 0.04 mm squares of a hemocytometer filled from one diluting pipette, the maximum unavoidable error in counting is $\pm 18\%$ (Berkson, J., Magath, R. B., and Hurn, M. *Am J Physiol* 128:304, 1940). A report of 3,800,000 erythrocytes per cubic millimeter of blood is not an actual count of cells in a cubic millimeter but a calculation based on a count of relatively few cells. This error is termed unavoidable since it is the error assuming no error in technique. The true count, in the instance in which 3,800,000 erythrocytes are reported, is probably between 3,100,000 and 4,500,000.

Nearly every procedure performed in the clinical laboratory could be discussed from the standpoint of unavoidable or permissible error. Our purpose is to call this type of error to the attention of the clinician so that he can interpret laboratory reports more intelligently.

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TRANVESTISM

To the Editor—The issue of May 30, 1953, of *THE JOURNAL* (153:391, 1953) contains an article on the surgical treatment of transvestism by Hamburger and associates. The Danish authors describe the case of a male transvestite who considered himself, like many transvestites, 'the victim of a cruel mistake,' namely of being a female in a male body. The patient demanded a removal of the hated male organs, since otherwise life was not worth living and he would commit suicide. After prolonged, but psychiatrically not quite satisfactory examinations, the patient was castrated in three stages: (1) hormonal castration with estrogenic hormones, (2) orchidectomy, (3) amputation of the penis, implantation of the urethra into the perineum, and creation of labia like structures by plastic surgery of the scrotum.

Although the authors state that "it cannot be denied that onanism (transvestism) may be psychically conditioned," they proceeded with the surgical treatment and based this course of action on hypotheses of genetic (chromosomal) changes that allegedly create sex intergrades and are responsible for the psychic striving of the transvestite to be identified with and regarded as a woman.

Nothing in the preliminary physical and hormonal examination of this patient offers any convincing evidence that somatic, genetically determined factors played a predominant role in this case. The young man had testes somewhat under average size but of normal consistency. Secondary sexual characteristics were male. He was of the asthenic type with a feminine habitus. There are men of exactly the same habitus who do not show any sexual deviation and conversely many sexual deviates whose body type is fully masculine. It is not understandable how genetic, chromosomal changes would affect a person's psychic structure and emotional attitudes without any somatic changes of an "intergrade" nature. The acceptance of effeminate attitudes and mannerisms by some homosexuals and transvestites can be very well explained by the strong psychic drive to identify with a woman. How would we explain the presence of sexual deviation in men who neither in their body build nor in their behavior show the faintest trace of "intergrade" characteristics?

I do not wish to deny the presence of constitutional, hereditary factors in mental illness and in sexual perversions, however, we cannot assume that a specific genotype will produce a specific perversion such as homosexuality, fetishism, or transvestism. Psychiatric histories of sexual deviates show certain environmental factors that interfered with their normal psychosexual development and led to a specific perversion.

The psychiatric history of the patient as published in *THE JOURNAL* is very brief, and the patient's statements that he

never felt 'any deep affection' for his sister and that he had no 'exceptional feelings' for his parents are taken at face value. No attempts were made to elicit forgotten childhood memories with sodium amobarbital (Amytal) interviews or even to use projective psychological tests (e.g., Rorschach and Thematic Apperception Tests). These techniques would have shown much more than the patient was able to disclose in ordinary psychiatric interviews. From the history as given it seems this patient grew up in a vacuum. A deeper going psychiatric investigation, even without resorting to psychoanalysis, would have disclosed psychological and emotional factors that determined this patient's deviation from the normal psychosexual development. Contrary to the statement of Hamburger and associates, patients with transvestism were psychoanalyzed and a report of a case was published by Fenchel (*The Psychology of Transvestism, Internat J Psychoanalysis* 11:211, 1930). It is true that reports on the treatment of transvestites are scarce in the psychoanalytic and psychiatric literature. This is due to the extreme reluctance of transvestites as well as of other sexual deviates to undergo any treatment that actually would remove the perversion and deprive them of their perverse gratifications. The difficulty of getting the patient into psychiatric treatment should not lead us to compliance with the patient's demands, which are based on his sexual perversion.

Transvestites present the picture of an especially complex sexual deviation and show features of fetishism (overvaluation of female clothing), homosexuality (desire to be a woman), exhibitionism (desire to show themselves as a woman), and masochism. The patient reported on by the authors showed marked masochistic traits, as exemplified in his persistent demand to be castrated (a comparable observation was published by M. Grotjahn [*Transvestite Fantasy Expressed in a Drawing, Psychoanalyst Quart* 17:340, 1948]). We observe this as a symptom in some schizophrenics who at times will resort to self-mutilation be it self-castration, self-blinding, or some other form of serious self-inflicted injury. It would not be surprising if a closer investigation of this patient were to disclose the presence of an underlying schizophrenic process that has not become manifest in any other overt symptoms except for the insistent striving to be castrated. With all due respect for the surgical skill of Dr. Hamburger and his associates, one can hardly maintain that the psychiatric indication for this procedure was sound.

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CHILDREN'S SHOES

To the Editor—Relative to the article 'Children's Shoes' by Louis Starr in *THE JOURNAL* (151:1401 [April 18] 1953), I would like to make the following comment. So far as the normal foot is concerned, either adult's or child's, the shoe is essentially a platform designed to protect the foot and to keep it off the ground. Although custom and style have determined certain changes, no shoe can be too large to fit properly. This, of course, becomes ridiculous if carried to the extreme, but the point is only a shoe that is small or that cramps or puts undue pressure on tender structures can fit poorly. As long as a youngster can wear his shoes easily and without tenderness at pressure points, his shoes fit. Persons with normal feet are comfortable in practically any shoe so long as it is large enough, those accustomed to tight fitting and poorly-designed shoes complain, initially, that adequate shoes "flop" but, after several weeks, become accustomed to the freedom of motion of the larger shoe. A large shoe is out of the question for women who wear high heels, since tightness of the shoe is necessary to keep the foot from sliding forward.

I think the normal child may be permitted to go barefoot as long as he does not endanger himself. I see no objection to healthy youngsters going barefoot but I do agree that youngsters in the house should not be permitted to wear slippers or to go barefoot during convalescence.

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MEDICAL LITERATURE ABSTRACTS

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American Journal of Public Health, New York

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Simultaneous Traumatic Dislocation of Hip.—In an automobile collision a 38 year-old man sustained multiple wounds and abrasions, a posterior dislocation of the left hip, with small fractures of the posterior superior acetabular edge, and an anterior dislocation of the right hip with less extensive acetabular rim fracture Three unsuccessful attempts with the patient under general anesthetic, with the help of four assistants, were made to reduce the right hip by traction and manipulation The head of the femur could be brought to the acetabular edge but not slipped into the joint For the fourth attempt the patient was lowered on to the covered floor and there a reduction was accomplished Because of falling blood pressure and shock, reduction efforts on the left hip were

postponed A plaster of paris hip spica cast was applied covering the right leg completely and the left leg (hip still dislocated) to the knee This was to maintain the reduction of the right hip and to hold the left hip in status quo Eleven days after the accident the plaster encasement was removed Under general anesthesia, with every care not to rotate or flex the right thigh, he was again placed on the covered floor The posterior dislocation of the left hip was reduced by gentle but strong traction applied in the long axis of the leg, with counterpull and pressure on torso and pelvis, and followed by slow flexion and internal rotation of the left leg and thigh, accompanied by pushing-up pressure on the greater trochanter of the femur The patient was encased in a double body plaster of paris spica covering both legs, held in partial abduction and slightly flexed at the hip joints Six weeks later this cast was removed Two weeks after that the patient had good locomotion and only a slightly diminished tractile sensation on the outer side of the left foot Necrosis of the caput femoris did not follow this instance of simultaneous traumatic dislocation of both hips Fractures of the acetabular rims healed with no apparent blocking of hip joint motions up to six years after dislocation When shock exists, with bilateral dislocation of the hip, one side may be reduced at a time, with out too great an interval (10 days) Putting the patient in a position where one may apply one's utmost physical power under control is the wisest course in reducing dislocation of the hip The floor can be used Prolonged rest after reduction of hip dislocation with slowly increasing active motions of the hip and long delayed weight bearing favor a good prognosis.

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Exacerbation of Ivy Dermatitis by Rhus Antigen Injections—The histories of four patients in whom exfoliative dermatitis developed following the injection of rhus antigen for ivy poisoning are presented In all four cases the dermatitis apparently began as simple ivy dermatitis and grew steadily worse with each injection of the rhus antigen, or else additional sensitivity appeared either in the form of exfoliative dermatitis or pompholyx or both Reyer hopes that as more instances of these and other complications of this rather illogical form of poison ivy treatment are brought before the practitioners, this type of antigen injection will be stopped and more beneficial methods developed Thirty years ago several papers appeared praising the use of rhus antigen by injection in treating acute ivy poisoning, however, reports gradually appeared that showed a lack of benefit or even harm from the use of the injected antigen during the attack Contradictory reports about the efficacy of rhus antigen injections led to an investigation of the results obtained with this treatment The conclusions

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Titles marked with an asterisk (*) are abstracted

were that since no satisfactory evidence yet shows the course of ivy dermatitis to be improved by such injections, since many patients have been shown to be made worse by such treatment, and since the practice is not in accord with immunological principles, the use of the rhus antigen in the treatment of the acute phase of the disease should be discouraged

Annals of Internal Medicine, Lancaster, Pa

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Immunologic Mechanisms in Thrombocytopenic Purpura.—Tests performed on 35 patients between the ages of 2 and 71 with idiopathic thrombocytopenic purpura indicated that an immunologic mechanism is responsible for the low platelet count in many of these cases. Platelet agglutinins were demonstrated in vitro in the plasma of many of these patients, and a factor presumably identical to this platelet agglutinin proved capable of inducing thrombocytopenic purpura and altering megakaryocytes in normal subjects or patients with inoperable cancer who were transfused with 500 cc of whole blood or its plasma equivalent obtained from 26 patients with thrombocytopenic purpura. Splenectomy was performed in 28 of these patients, and 19 were treated with cortisone or corticotropin (ACTH). Remission following splenectomy was not necessarily accompanied by disappearance of the thrombocytopenic factor from the patient's plasma, but this factor did disappear in spontaneous remissions and in those induced by corticotropin or cortisone. Of 14 patients in whom evidence for increased platelet destruction was lacking, 11 were treated by splenectomy. Only one had a good response, and two were briefly benefited. It is suggested that idiopathic thrombocytopenic purpura may also arise from failure of megakaryocytes to produce circulating platelets. Reference was made to the existence of serologically different platelet types. A study was made of seven women who had had a total of 12 pregnancies in which either the mothers or the infants had purpura. Three of the mothers had platelet agglutinins in their plasma, all eight infants born to these three mothers had thrombocytopenic purpura and it is postulated that neonatal thrombocytopenia in these infants developed as a result of transmission across the placenta of maternal autoagglutinins for platelets. Two of the seven mothers were in apparently perfect state of health but gave birth to infants with thrombocytopenic purpura, isoagglutinins in the maternal serum for the infant's platelets were demonstrated in one case. It is suggested that neonatal thrombocytopenia was due to development of isoagglutinins because of fetal and maternal platelet incompatibilities. The remaining two mothers had severe thrombocytopenic purpura at the time of delivery, but had no platelet agglutinins in their plasma. The infants in both instances were normal. These two cases are considered to represent examples of maternal thrombocytopenia in which platelet agglutinins have played no part in pathogenesis, and consequently the infants' platelets were normal.

Cardiac Catheterization.—Venous catheterization of the right side of the heart and of the pulmonary artery according to Courmand and Ranges' technique was performed in 128 patients with heart disease with various etiological bases. Of these 128 patients, 15 adults are described in detail in whom cardiac catheterization was employed in diagnosis and man-

agement and found to be practical. As a result of his experience the author states that cardiac catheterization was most helpful in the diagnosis of left to-right shunts, such as patent ductus arteriosus, atrial septal defect, and ventricular septal defect. By means of hydraulic formulas, catheterization may aid in estimation of the degree of stenosis of various valves, e g, pulmonary, mitral and tricuspid valves. In the author's hands, the hydraulic formulas have not been satisfactory in estimating the size of the patent ductus arteriosus. By means of pressure curves in the right atrium and pulmonary 'capillary' pressure curves, the catheter may be of value in the diagnosis of the insufficiency of the tricuspid and mitral valves. The procedure may aid in the diagnosis of right ventricular failure by showing elevated pressure of the right ventricle at the end of the diastole and elevated right atrial mean pressure. The catheter may aid in the diagnosis of left ventricular failure by showing elevation of the pulmonary 'capillary' mean pressure and widening of the arteriovenous oxygen difference, if the failure is of the low output type. The catheter may aid in the diagnosis of high output failure, e g, in thyrotoxicosis, beriberi, systemic arteriovenous fistula, anemia, and Paget's disease of the bone. By means of characteristic right ventricular pressure curves the catheter may be helpful in the diagnosis of pericardial constriction and cardiac tamponade. Catheterization aids in the diagnosis of cor pulmonale in showing high pulmonary arterial pressure associated with normal pulmonary 'capillary' pressure and a tendency toward normal cardiac output. Pulmonary artery pressure may be expected to rise after digitalization in cor pulmonale with failure, and to fall after digitalization in left ventricular failure. By means of the determination of the oxygen saturation of the pulmonary 'capillary' blood, catheterization may be used to differentiate between arterial oxygen unsaturation due to emphysema and that due to right-to-left shunt.

Reiter's Syndrome.—Of 23 men between the ages of 21 and 41 years with Reiter's syndrome, 20 had urethritis, conjunctivitis, and arthritis, while the other 3 showed little evidence of either urethritis or conjunctivitis but did have arthritis and typical mucocutaneous lesions that were present in all 23 patients. Several small, erythematous papules often surmounted by a vesicle were observed on the prepuce and/or the glans penis in 18 of the 23 patients. After rupture of the vesicle, the ulcerated papule was covered by a purulent crust or a cornified layer. Occasionally erosion of the urethral meatus was present. An erythematous, weeping, eczematoid eruption of the scrotum and groin was seen in four patients. Vesicles surrounded by a zone of erythema, which soon ruptured leaving small ulcers, were observed on the palate or buccal mucosa in 11 patients. Five patients showed changes in fingernails and five in toenails, subungual hemorrhages, splitting of the nails into several opaque layers, and conversion of nails into thick, horny appendages were observed. Five patients had dermal lesions morphologically indistinguishable from those of keratoderma blennorrhagica, involving the genitalia, groins, perineum, buttocks, extensor surface of legs, knees, elbows, soles of the feet, axillae, and scalp. Vesicular and papular lesions in the skin and mucous membranes were so common in the authors' series as to aid in the diagnosis of doubtful cases. The arthritis was prolonged in duration but rarely produced permanent deformity. Fourteen patients admitted a recent extramarital sexual experience before the onset of their disease. One patient was observed during two episodes of Reiter's syndrome, the second episode beginning six months after cessation of the first. In each instance this patient admitted extramarital sexual experience with the same woman about one week before the onset of his disease. In 14 of the 23 patients, the first symptom was urethritis. These data suggest that the disease may be due to a venereal infection, with the urethra as the portal of entry. Bacteriological and serologic studies demonstrated active gonococcal infection in only one of the 23 patients. Pleuropneumonia-like organisms were isolated from the urethral exudate in only one of the eight patients examined. Fecal cultures in five patients with diarrhea failed to show *Shigella* or other bacterial pathogens. The cause of Reiter's syndrome

remains in doubt. The most effective therapeutic measures were rest, high-caloric diets, salicylates for pain, and intensive physical therapy. Streptomycin seemed to produce slight improvement in four of six patients. Cortisone and corticotropin (ACTH) caused a temporary decrease in fever and arthritis of a few patients.

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Trauma as a Cocarcinogen in an Oil Worker.—The 60-year-old man whose case is presented had been employed by a petroleum corporation for 30 years. His work involved frequent skin contamination by a moderately heavy refined oil used in transformers and electrical motors. Physical examination revealed a tumor mass, 1.7 cm in diameter, extending 3 to 4 mm above the skin surface over the dorsum of the third right metacarpal. One month before, the patient had cut the dorsum of his right hand at the site of the present tumor. The wound healed slowly, and working resulted in minor abrasions to the overlying eschar. Two weeks prior to entry, a severe blow was received on the injury site, and following this the tumor appeared and grew rapidly. It was removed

by excision, and microscopic examination revealed a grade 1 squamous cell carcinoma. The concept of "sensitization" or "preparation" of skin by means of suboptimal exposure to carcinogenic hydrocarbons has been experimentally established by several investigators. The suboptimal exposure converts some of the cells in the skin of experimental animals to a preneoplastic condition. Following this stage, nonspecific agents such as wound healing, freezing with carbon dioxide snow, croton oil, and mechanical irritation convert the process to true neoplasia. In this patient occupational exposure to petroleum products presumably served as the initiating mechanism, and the wound healing following trauma as the promoting agent.

Aureomycin and Nitrogen Mustard in Human Cancer.—Regional intra arterial administration of the nitrogen mustard (methylbis[2-chloroethyl] amine hydrochloride) has been found to produce on certain cancers therapeutic effects that could not be achieved by intravenous administration. Serious systemic infection occurred, however, in several patients who were given daily doses of the nitrogen mustard through an indwelling arterial cannula. The source of infection in these cases was either the arterial cannula tract or the devitalized tumor tissue. To prevent such systemic infection, prophylactic use of a broad spectrum antibiotic such as aureomycin was considered desirable. The indwelling cannula offered a safe route of administration of aureomycin hydrochloride buffered with sodium glycinate (buffered aureomycin). Furthermore, reports that high concentrations of aureomycin affected rapidly dividing cells in tissue culture, in plants, and in animal tumors suggested that this drug might also be a chemotherapeutic agent active against cancer. This was further supported by the observation that simultaneous exposure of cells in tissue culture to nitrogen mustard and buffered aureomycin was more cytotoxic than exposure to the same concentration of either drug alone. For these reasons, nitrogen mustard and buffered aureomycin were administered intra arterially to 17 patients with hopeless cancer. The tumors regressed enough to permit surgical excision in four patients previously considered inoperable, one refused operation.

Multiple Arsenical Cancers of Skin and Internal Organs.—Sommers and McManus review 27 cases of arsenical cancer in 19 men and 8 women. Twelve had been treated for psoriasis with Fowler's (potassium arsenite) solution, one had received injections of arsenicals because of syphilis, two had had occupational exposure to arsenical sprays, and in four others occupational exposure seemed possible. Seven had been treated with arsenic for swollen lymph nodes, burns, dermatitis, or chorea. In three, the form of exposure was unknown. The arsenical origin was recognized clinically in all except one of the cases by the characteristic multiple keratoses of palms and soles. In addition to the large number and extent of multiple skin cancers, four of the six patients who came to autopsy had additional internal cancers, three at multiple sites. These visceral lesions were in the bladder, prostate, esophagus, colon, kidney, and chest wall. In five other patients who died, death was ascribed to cancer of the tonsil, esophagus, breast, pancreas, and lung. One patient with multiple skin cancers and lung cancer is living. Some skin lesions apparently developed from the epidermis, sweat, or sebaceous glands, and possibly hair follicles. Gradations of epidermal atrophy, hyperplasia, precancerous changes, carcinoma in situ (Bowen's disease), and invasive cancers were observed. The visceral cancers suggest that a second predisposed tissue is the squamous epithelium of the mouth and esophagus and the metaplastic squamous epithelium of the respiratory tract. The third region of predilection is the urogenital epithelium of the kidney, ureter, and urinary bladder. Heredity, chronic irritation, local sensitivity, and endocrine abnormalities may favor arsenical carcinogenesis. Present knowledge of the biochemical effects of arsenic suggest that it influences hydrogen transport, nucleoprotein metabolism, and phosphorylation. It acts mainly on the nucleus and interferes with mitosis. The consequences are visible cytologically as disturbed epithelial growth and delayed maturation, particularly in epidermal nuclei. Mechanical stimuli, roentgen rays, and hormonal imbalances may have additional carcinogenic effects.

Cancer Research, Chicago

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Critical Evaluation of Chemotherapy of Cancer—In summarizing the present status of the chemotherapy of cancer, Gellhorn classifies the substances used according to their mode of action into three groups (1) those producing an unfavorable environment for the cancer cell, (2) those modifying the systemic intoxication produced by cancer, and (3) those that damage the cellular functions. With the exception of the hormones, the chemical compounds that are used have significant toxicity for normal as well as for neoplastic cells. This precludes curative therapy, since the treatment necessary for destruction of the tumor would be lethal to the host also. Another limitation is the small number of tumor types that respond to drugs. Urethane, the folic acid antagonists, cortisone and the nitrogen mustards play a role in the treatment of the malignant lymphomas and leukemias which constitute only a small fraction of all the malignant neoplastic diseases. The empirical approach has largely consisted of screening chemical compounds for their effect on the growth of transplantable tumors in mice, rats, and rabbits. It must be recognized, however, that, with the possible exception of mouse leukemia, there is no evidence to demonstrate that transplantable or spontaneous tumors in laboratory animals are biologically directly comparable to human tumors. One apparent discrepancy between experimental and human tumors is in their relative growth rates. The cells of experimental tumors divide rapidly, and at any instant the majority of them are in an active phase of division. Human epithelial tumors grow relatively slowly, and morphological evidence indicates that only a small fraction of the cells are in active mitosis at one time. Since it is likely that cancer chemotherapeutic agents, like antibacterial drugs, can only destroy cells that are susceptible by virtue of active metabolism and division, it follows that effective drugs against human epithelial tumors will have to be administered and tolerated for long periods by the normal host cells. It may be significant that the drugs that are active in the currently employed animal tumor screening tests are effective principally against the most rapidly growing human tumors, the lymphomas and leukemias. The question is whether the screening techniques are missing compounds that are potentially useful against other tumors. The author suggests that more subtle end points than the ones now in use might indicate chemical compounds, that although they fail to produce dramatic changes in tumor growth after brief administration, might modify the growth of tumors when given over long periods.

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Management of Shock in Acute Myocardial Infarction—Approximately half the patients with severe shock complicating myocardial infarction can be saved by active therapy with vasopressor drugs, blood, and plasma. The duration of shock without treatment is an important diagnostic criterion, because recovery is extremely rare when profound circulatory failure has persisted for a number of hours. Irreversible myocardial lesions are sustained when the injured myocardium undergoes a period of greatly reduced blood flow. Therapy designed to maintain the circulation at a level compatible with life will limit or prevent progressive myocardial deterioration and will enable a heart that is capable of recovery to resume adequate functioning. Thirty-two patients whose shock was so profound at the beginning of treatment that no hope of survival was justified were given active therapy with a combination of blood, plasma, and a vasopressor drug, 14 recovered, indicating that, however severe their shock, patients with acute myocardial infarction have a chance for life. The longer the patient remains alive under treatment, the greater his chances of recovery become. Some of the patients in this series recovered after long periods of deep shock, one did not definitely emerge from shock until the end of 48 hours of treatment. Pulmonary edema is a particularly unfavorable complication, experience in this series indicates that the best results when pulmonary edema is present are obtained by combating the shock. The four patients with this complication who survived received no therapy directed toward the edema other than small doses of morphine, but they showed impressive clearing of the lungs as the blood pressure rose and they emerged from shock. Clinical recovery from circulatory failure in the 14 survivors was associated with attainment of a pulse pressure of at least 25 mm Hg. Treatment should be continued under the close attention of physicians until the emergency is over, nurses cannot be given the responsibility of making the many decisions required by the fluctuating condition of the patient.

Dibucaine Hydrochloride and Phenobarbital Sodium in Ventricular Tachycardia—Dibucaine (Nupercaine) hydrochloride was administered intravenously by slow injection or constant venoclysis to 22 dogs with ventricular tachycardia accompanying myocardial infarction. The dogs were divided into four groups. Group 1 received dibucaine alone. Group 2 received dibucaine in addition to 3 or 5 mg of morphine per

kilogram of body weight Group 3 received phenobarbital sodium, 25 or 40 mg per kilogram, as well as dibucaine Group 4 received dibucaine in addition to pentobarbital sodium, 10 or 15 mg. per kilogram Dibucaine alone was effective in suppressing ectopic activity, but vomiting and convulsive movements commonly occurred and interfered with administration in some animals Administration of morphine before dibucaine was given prevented vomiting but did not prevent convulsive movements, and the ectopic impulse suppressor action was neither enhanced nor prolonged Vomiting was also eliminated when phenobarbital was given before dibucaine, and only mild stretching movements of doubtful cause occurred in two of nine dogs during the tests Phenobarbital enhanced and greatly prolonged the ectopic impulse suppressor effect of the dibucaine Pentobarbital sodium eliminated vomiting and convulsive movements and enhanced the ectopic impulse suppressor effect of dibucaine without prolonging it The blood pressure tended to rise or to remain constant in all slow administration tests, and there were only minor alterations in the P-R and QRS intervals in the electrocardiogram, rapid administration produced periods of prolonged QRS deflections and hypotension Discontinuance of rapid infusion was followed by a return of all signs to normal within 30 seconds There were no deaths in any of the groups A combination of phenobarbital and dibucaine is regarded as an effective and relatively safe treatment for ventricular tachycardia accompanying myocardial infarction when suitable precautions are observed

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Methantheline (Banthine) Therapy of Enuresis.—After defining enuresis as repeated involuntary micturition after the age of 3, O'Malley and Owens review the neurophysiology of the bladder in order to show the rationale of methantheline (Banthine) therapy It has been demonstrated that methantheline suppresses the pelvic nerve stimulation of the bladder For this reason methantheline has been used to treat irritable bladders, cystitis, and interstitial cystitis with ulceration (Hunner's ulcer) Since it is believed that the bladder of the enuretic patient is irritable, with a tendency toward uninhibited contractions, the authors decided to use methantheline to treat enuresis By inhibition of the local reflex with methantheline, the bladder will gain more capacity and accommodate a larger volume without an increase in intravesical pressure In this way, in spite of poor cerebral inhibition, adequate inhibition will be maintained at the reflex level Two cases of enuresis treated with methantheline are reported in detail and nine more are charted The ages of the patients ranged from 5 to 15 Methantheline was given at bed time In one patient 25 mg. produced no significant improvement, but 50 mg. was temporarily effective After a relapse, 75 mg. was given and the symptoms subsided In the second patient 50 mg. of methan

theline with phenobarbital and limitation of fluids for one hour before bed time produced immediate relief of enuresis. Relapse occurred in only 3 of the 11 patients, and by increase of the dose, the enuresis was overcome and continence was maintained.

Neurology, Minneapolis

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- Occurrence of Continuous Symptoms in Epilepsy Patients J. S. Scott and R. L. Masland—p. 297
- *Effect of Tension in Myasthenia Gravis M. R. Westerberg, K. R. Magee and F. E. Shildeman—p. 302

Cerebral Complications of Serum Sickness.—Two types of central nervous system involvement occur in serum sickness, peripheral and central. The entity referred to as serum neuritis is the commonest peripheral lesion. Isolated lesions of the cranial nerves have been described. A more generalized polyneuritis, which resembles that of acute infectious polyneuritis or the Guillain Barré syndrome, and even acute ascending paralysis of the Landry type also may be seen with serum sickness. No instances of purely spinal lesions with paraplegic signs are on record, although in some cases of generalized polyneuritis accompanying serum sickness, pyramidal tract signs and sensory disturbance corresponding with a definite spinal level suggested the presence of some lesion of the spinal cord. The frequency of cerebral injury in serum sickness is difficult to know. After describing a case of Windorfer's "neuro-allergic encephalitis," the authors say that the rarest manifestation of nervous system damage in serum sickness is focal cerebral injury. Two patients observed in the past year with focal brain damage following injection of serum are described. The first patient became very drowsy seven days after receiving antitetanus serum and on the eighth day awoke with an urticarial eruption over the face, arms, and trunk. A few hours later, he suddenly became unconscious and was semicomatose over the next 48 hours. On the 11th day after injection he regained consciousness, but had a complete right hemiplegia, aphasia, hemianesthesia, and homonymous hemianopsia. Six weeks following the injection of the serum he was hospitalized for investigation and custodial care. He had regained some power in the right leg, but was still unable to move the right upper limb, and was aphasic, with the field defect persisting. In the second patient the cerebral damage was of similar nature, but was much milder in degree, with a reasonably good functional recovery and little residual change. These cases are comparable in every way to nine previously reported in the literature. The authors speculate on the nature of the lesions in these patients and say that the reported cases of allergic encephalitis, myelitis and neuritis with serum sickness show considerable similarity to the nervous system reactions of acute virus exanthema, infectious mononucleosis, and collagen diseases.

Sensitivity to Tubocurarine and Decamethonium in Myasthenia Gravis.—The purpose of the experiments described here was to determine and compare equipotent doses of tubocurarine and decamethonium in normal subjects and in patients with myasthenia gravis. It was hoped that by interpretation of the effects of these agents in the light of the difference in their mode of action at the neuromuscular junction, some insight might be gained into the abnormal physiology in myasthenia gravis. Threshold paralytic doses of tubocurarine and decamethonium were determined in 30 patients with myasthenia gravis and in 22 nonmyasthenic subjects. Patients with myasthenia gravis (mean threshold dose 5.42 μ g per kilogram of body weight) were 5.5 times as sensitive to tubocurarine as were nonmyasthenic subjects (mean threshold dose 24.77 μ g

per kilogram). About 3 to 4% of normal subjects are as sensitive to tubocurarine as an average patient with myasthenia gravis, and about 3 to 4% of patients with myasthenia gravis are not abnormally sensitive to threshold doses of tubocurarine. Patients with myasthenia gravis were not more sensitive to decamethonium than were nonmyasthenic subjects. With subthreshold doses of decamethonium, patients experienced transient amelioration of signs and symptoms. Results obtained are consistent with the concept that the fundamental feature of myasthenia gravis is a blockade of the neuromuscular junction by a substance or process that decreases the muscular response to acetylcholine.

Effect of Edrophonium in Myasthenia Gravis.—Edrophonium (Tensilon) chloride is one of the quaternary ammonium salts that exert a stimulatory effect on the neuromuscular junction. It is capable of antagonizing the neuromuscular blockade produced by *d*-tubocurarine. The organic phosphates, such as tetraethylpyrophosphate, act only by their anticholinesterase effect; neostigmine has both a direct stimulating effect at the myoneural junction and an anticholinesterase effect, and edrophonium acts primarily by direct stimulation at the myoneural junction and only secondarily as an anticholinesterase agent. Thirteen patients with myasthenia gravis and four controls were given intravenous injections of 10 or 15 mg of edrophonium; three received additional doses orally, while one patient also received intramuscular injection of the drug. Increase in strength began within 30 seconds after intravenous administration, or as soon as it could be tested, and increased to a maximum within 1 to 10 minutes. The effect began to decline after 10 minutes, but there was a secondary rise of lesser degree. The effect of the injection lasted less than one hour in most patients. Grip strength increased from 90 to a maximum of 200 lb in the patients with myasthenia gravis. Clinical improvement correlated favorably with this and was sometimes spectacular. Side-effects were mild. No patient with myasthenia gravis had fasciculations, though the control group did experience them. There was improvement in strength regardless of the previous medication, but the increase seemed to be greater in those who previously took tetraethylpyrophosphate than in those who were receiving neostigmine. The control subjects also experienced a prompt increase in strength, even though it was of small magnitude. The secondary rise noted in most tests may represent the minor anticholinesterase action of the drug. After intramuscular injection of edrophonium, the response became apparent within 10 minutes, attained the maximum in about an hour, and then declined over a period of three to five hours. Strength was fairly well maintained by injections of 50 mg every three to four hours. Reactions to the intramuscular medication were minimal. A measurable increase in strength resulted also from the oral administration of 50 to 250 mg doses. The effect began within 30 to 60 minutes and lasted several hours. The patient discontinued the oral medication because of headaches. The authors conclude that edrophonium seems to offer a new approach to the study of myasthenia gravis, based on pharmacological action unrelated to anticholinesterase activity.

Northwest Medicine, Seattle

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- Anaphylactic Shock in Penicillin Therapy K. Chapman and D. Metheny—p. 207
- Cholesterol and Cystic Duct Obstruction in Pathogenesis of Gall Stones J. M. Roberts—p. 208

Selection of Patients for Mitral Commissurotomy.—According to Bruce and co-workers, commissurotomy should not be done simply because a patient has a characteristic murmur of mitral stenosis on auscultation. The following four point program has been employed by the authors for selection of patients for mitral commissurotomy: 1. Accurate clinical diagnosis of mitral stenosis must be made. Usually percussion or chest x-ray examination demonstrates that the left border of the heart is straightened due to enlargement of the pulmonary

conus, artery, and left auricle The first heart sound at the apex and the second sound at the base to the left of the sternum are accentuated There are variable murmurs, such as mid- and late-diastolic murmurs at the apex, an occasional systolic murmur at the left sternal border (arising from the pulmonary artery), as well as an early diastolic murmur of pulmonary insufficiency (Graham Steell murmur) Murmurs may vary with posture, arrhythmias, respiration, and fibrotic and calcific changes in the mitral valve Demonstration of the moving calcified valve shadow during fluoroscopy is confirmatory 2 Clinical evidence of need for surgery depends on symptoms of pulmonary engorgement and diminished working capacity Cardinal symptoms are dyspnea, orthopnea, cough, and hemoptysis Fatigue is the earliest evidence of decreased working capacity, inability to perform the customary daily activities is a more advanced sign, and clinically apparent heart failure is a far advanced sign In the absence of these indications for commissurotomy, surgical intervention for mitral stenosis is justified in a woman of the childbearing age with a history of congestive heart failure during pregnancy, or in a patient with a history of repeated arterial emboli who is likely to have a recurrence that might cause a serious, or even fatal complication, and in whom auricular appendectomy is proposed prophylactically 3 Clinical contraindications to mitral commissurotomy are recent and uncontrolled acute rheumatic fever, subacute bacterial endocarditis, intractable heart failure, or the presence of pronounced aortic stenosis, mitral insufficiency, left ventricular enlargement, or left axis deviation of the electrocardiogram 4 The decision to intervene surgically also depends on the optimal time for commissurotomy When there is virtually no risk from operation, there is usually no need for it, on the contrary, when the need is greatest, the risk is also maximal Then appropriate laboratory tests may provide quantitative data that will aid the physician in making this important decision Much can be learned from clinical evaluation of symptoms and signs, chest fluoroscopy, pulmonary function studies, and phonocardiography Although cardiac catheterization provides considerable information regarding intracardiac and pulmonary hemodynamics, more practical information that aids the clinical management of these patients has been obtained from serial exercise tolerance tests By the latter technique, it has been possible to evaluate quantitatively not only the need and the optimal time for surgery but also the degree of improvement following operation

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- Dominant Inheritance of Diabetes Insipidus Family Study C B Pender and F C Fraser—p 246
- *Clinical Diagnosis of Endocardial Fibrosis Analysis of Literature with Report of Four New Cases E C Lambert C N Shumway and K. Terplan—p 255

Magnesium Sulfate in Acute Glomerulonephritis—Magnesium sulfate has been used extensively in the therapy of acute glomerulonephritis in children The few studies of the mode of action of the drug demonstrated that the magnesium ion is responsible for the beneficial effects on the hypertension and encephalopathy The studies described here aimed to determine the effect of magnesium sulfate on the renal dynamics of normal children and of those in the hypertensive and convalescent phases of acute nephritis Inulin and sodium para-amino hippurate clearances were used as indicators of the glomerular filtration rate and of effective renal plasma flow Magnesium caused no changes in the renal function of normal children, but in children with acute nephritis, the glomerular filtration rate and effective renal plasma flow were markedly subnormal during the hypertensive stage and increased toward normal during convalescence The intravenous administration of magnesium sulfate caused marked rises in the glomerular filtration rate and in effective renal plasma flow when given during

the hypertensive stage Magnesium produced smaller rises in effective renal plasma flow but no changes in the glomerular filtration rate when given during convalescence The implications of these findings are discussed It is suggested that renal vasospasm is present in children with acute glomerulonephritis and that adequate therapy with magnesium sulfate relaxes this vasospasm

Gross Visual Defects Due to Retrolental Fibroplasia—The incidence of gross visual defects due to retrolental fibroplasia was studied among infants born during 1948 and 1949 to residents of New York State, exclusive of New York City Since it was not feasible to study all of the nearly 300,000 infants, only those whose birth weights were less than 2,000 gm. and who survived to the age of 4 months were selected for study Questionnaires were sent to the mothers of the selected infants Information was obtained on 3,377 infants, or 92.1% of the 3,667 selected for study A total of 50 cases of gross visual defects due to retrolental fibroplasia was found The incidence rates decreased from 15.9% in the birth weight group under 1,000 gm to 4.3% in the 1,000 to 1,499 gm group, and 0.7% in the 1,500 to 1,999 gm group The infants reported as having the shortest periods of gestation were found to have the highest incidence, the rate in the group with a period of gestation under seven months being 7.6% as compared with a rate of 0.3% in the group whose gestation period was reported as eight months or more The incidence of gross visual defects was not related to the occurrence of complications during the mother's pregnancy The incidence was slightly higher in males than in females, and also slightly higher in the infants of mothers over 30 years of age

Clinical Diagnosis of Endocardial Fibrosis—Endocardial fibrosis (also termed endocardial sclerosis and endocardial fibroelastosis) is now recognized as a pathological entity occurring in infants and having a grave, if not universally fatal, prognosis Previous publications have dealt chiefly with the morphological aspects, the possible cause, and the mechanism of cardiac failure It has been differentiated as a pathological entity from the group of diseases termed idiopathic cardiac hypertrophy The purpose of this communication is to discuss the diagnostic possibilities and to describe four cases seen by the authors in the past two years Evidence is presented that indicates that endocardial fibrosis is a relatively common cause of death from heart disease in infancy and that a presumptive diagnosis of this condition can often be made during life The salient features are age under one year, marked dyspnea without persistent cyanosis, absence of a loud cardiac murmur on repeated examinations, enlargement of the heart, presence of femoral pulsations, and electrocardiographic evidence of left ventricular hypertrophy in the precordial leads The chief conditions to be considered in the differential diagnosis are aberrant coronary artery, interstitial myocarditis, and glycogen storage disease of the heart, all of which are much less frequent as proved by necropsy studies In two of the four cases described here, the diagnosis was made before death

Proc Staff Meet Mayo Clinic, Rochester, Minn

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Curling of the Esophagus.—The condition referred to here as curling of the esophagus has been referred to also as pseudo-diverticulum, segmental spasm, spastic pseudodiverticula, functional diverticula, spasmodic stricture, and diffuse spasm of the lower half of the esophagus. Roentgenograms made at the right moment show that the esophagus has a corkscrew or coiled appearance. When the patient swallows barium under the fluoroscope and the bolus reaches the lower half of the esophagus, there suddenly appear numbers of ring-shaped constrictions that may completely occlude the lumen, moving neither up nor down. This usually precedes the first peristaltic wave, and when it arrives, the portion above the tight constriction distends until some of the barium is regurgitated above the peristaltic wave. In some patients the pressure is so great that diverticulae are seen to protrude and become permanent. The etiology of curling is obscure and many theories have been postulated, some of which are cited. The patient's chief complaint is usually dysphagia. Pain is referred to an area behind the lower half of the sternum. It may also go posteriorly into the mid-dorsal region. It sometimes extends upwards to the anterior thorax, neck, either external auditory meatus, or jaw. It may be centered in the epigastrium. It is usually associated with eating or drinking. Roentgenologically the condition is usually easily recognized but associated disease of the esophagus, particularly carcinoma, must be ruled out. This may sometimes prove impossible because the esophagoscope cannot be passed beyond the constricting rings. Treatment is not very satisfactory. Esophagoscopy is said to give partial relief. Repeated dilatation has helped to some extent. Psychotherapy with relief of nervous tension has helped. Atropine is usually not effective. Citing therapeutic observations of several other observers, the authors say that morphine sulfate given intravenously caused relief for several hours, amyl nitrate transitory relief and amphetamine (Benzedrine) sulfate relief for about an hour followed by worsening. A combination of hyoscyamine 0.45 mg, atropine sulfate 0.04 mg, and scopolamine hydrobromide 0.01 mg, one tablet twice a day, gave relief to patients who had associated parkinsonism. Amphetamine sulfate 5 mg every 4 hours for 36 hours gave complete relief to two patients. The 19 cases presented here were observed among a group of 2,295 patients in whom fluoroscopy of the esophagus was done. The average age of these patients was 66 years, the youngest was 49, and the oldest 84 years. The authors feel that in an aging population this condition will be found quite frequently.

Carbon Dioxide Therapy.—This report is concerned with the effect of carbon dioxide therapy in 250 patients (treated since February, 1951), most of whom had psychoneurotic disturbances. There were no psychotic patients in this group, which included many with mild depression in a form usually viewed as neurotic or reactive, some with anxiety in which depression, if present, seemed secondary to the anxiety, some with

hysterical reactions without outspoken disturbances in affect, an obsessive-compulsive phobic group often showing anxiety, and finally a miscellaneous group of patients with alcoholism, stuttering, or organic lesions and a neurotic overlay. The treatment consisted of inhalations of a 30% carbon dioxide and 70% oxygen mixture and was given by the method advocated by Meduna in 1943. After October, 1951, the treatment was modified for some patients. It was necessary to induce coma for the treatment to be effective. The number of inhalations (25 to 40) necessary to induce coma in some depressed and some anxious patients tended to accentuate the anxiety. Nitrous oxide (N_2O) was used as a preliminary anesthesia. This was much easier to breathe. After eight or nine inhalations, transfer was effected to the carbon dioxide and oxygen mixture and coma was rapidly induced. The 15 to 25 inhalations of the carbon dioxide and oxygen mixture, after the preliminary nitrous oxide, usually produced some decrease of the depression or amelioration of anxiety symptoms. The treatment was effective in about 45% of the patients and an additional 25% reported slight but definite improvement. The effect of the treatment is sustained, since the 100 cases followed for 6 to 12 months show the same proportion of improvement as the 100 cases followed for from 12 to 20 months.

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- Double Contrast Studies of Colon Polyps in Children C W Yates—p 315
- Value and Uses of Gastroscopy T J Manson—p 319
- Vertical Flap Ureteropelvioplasty Preliminary Report. P L. Scardino and C L Prince—p 325
- *Ten Years Experience in Surgical Management of Cancer of Lungs A R. Diaz and H Anido—p 332
- Primary Meningeal Melanomas S Russl C Robinson and B Nagler—p 336
- *Venous Catheterization of Heart in Selection of Patients for Mitral Commissurotomy D W Chapman R H. Skaggs, I M Johnson and others—p 343
- Steroid Hormones and Collagen Diseases T B Schwartz, F L Engel and W M Nicholson—p 347
- Adrenal Insufficiency in Newborn Male Infants B P Briggs E H Crawley and V L. Toombs—p 351
- Pheochromocytoma W H. Gerwig Jr and S F Seeley—p 355
- *Results of Three Years Experience with New Concept of Baby Feeding W W Sackett Jr—p 358
- Development of Vision and Its Relation to Muscle Anomalies G S Ellis and R L. Waugh Jr—p 363
- Differential Diagnosis of Deafness L W Alexander—p 372
- Management of Third Stage of Labor J E Savage—p 379
- Long Acting Intercostal Nerve Block Safer Method of Anesthesia for Abdominal Surgery R. W Bartlett and D W Eastwood—p 385
- Acute Pancreatitis Diagnosis and Treatment H L Bockus A Bogoch and J L. A Roth—p 388

Cancer of Lungs.—Of 94 male and 6 female patients between the ages of 11 and 68 with cancer of the lung observed in Cuba during the last 10 years, 94 were treated by thoracotomy and only 6 were rejected for surgery because of metastasis to supraclavicular lymph nodes or other organs. In 22 of these 94 patients a resection was not possible, 69 underwent total pneumonectomy and 3 lobectomy. Microscopic examination of the tumor was done in 77 cases and revealed squamous cell carcinoma in 49, adenocarcinoma in 25, oat cell carcinoma in 2, and 1 alveolar cell carcinoma. Of the 69 patients who had pneumonectomies, only 18 were free from involvement of the mediastinal lymph nodes, this latter group had the best survival rates. There were four operative deaths, and four patients died while still in the hospital. Of the remaining 64 patients, 1 survived for eight years, 1 for six years, 15 for four years, 19 for three years, 14 for two years, 10 for one year, and 4 for six months. These survival rates compare favorably with results obtained with surgical treatment of cancer of other organs. The authors' 71% resectability rate is much higher than that in three other series of patients with cancer of the lung previously reported by leading surgeons in the United States. The authors believe that this difference can be explained by the fact that their first patient was operated on in 1942 at a time when the general practitioner had been alerted by countless papers on the early diagnosis and surgical treatment of cancer of the lung and thoracic surgery was well developed. Early diagnosis and early exploratory thoracotomy determine the success of surgical treatment of cancer of the lung.

Selection of Patients for Mitral Commissurotomy.—Of 36 rheumatic patients with predominantly mitral stenosis who were studied by venous catheterization of the right side of the heart and by cardiac output determination, 30 were treated by commissurotomy. Two of the 30 died. Indications for commissurotomy as suggested by cardiac catheterization were ascertained as follows: (1) elevated "pulmonary capillary pressure" at rest, increasing with exercise, (2) elevated pulmonary arterial pressure at rest and during exercise, (3) reduced cardiac output at rest, with little or only slight increase during exercise, (4) arteriovenous oxygen difference elevated above normal, both in the resting and exercise states, (5) increased pulmonary arteriolar resistance and total pulmonary resistance, (6) mitral valve area decreased below 1.5 sq cm as calculated by the formula of Gorlin and Gorlin.

New Concept of Infant Feeding.—A new infant feeding regimen that rapidly converts a six hour feeding schedule to a three-meal-a-day regimen, and introduces food other than milk as early as the second day of life has been employed in 300 infants in Miami, Fla., during the past three years. Results showed that the new regimen was gratifying to its users and also a source of medical interest as these infants continued to follow closely and sometimes even surpassed the physical standards set up by babies on a more conservative routine. A more detailed survey, now in progress, would seem to emphasize the results of the author's preliminary survey done over one year ago. In addition these results would seem to be equally satisfactory in infants fed by this schedule but not under the author's direct supervision.

Southwestern Medicine, El Paso, Texas

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Pollomyelitis W E Coggeshall —p 87
Our Job in 1953 T C Terrell —p 92.

34 109-148 (April) 1953

Treatment of Intra-Oral Carcinoma J M Owens.—p 129
Case of Obstruction of Duodenum Resembling Superior Mesenteric Artery Syndrome D D Galn and A R Uzel —p 133

Texas State Journal of Medicine, Fort Worth

49 123-204 (March) 1953

Accidental Death Challenge to Modern Pediatrician G B Forbes —p 127
Twenty Seven Years of Cataract Surgery in Review W E Vandever —p 131
Glaucoma in Aphakia A A Nisbet.—p 134
*Tobacco-Alcohol (Toxic) Amblyopia H W Maxwell —p 137
Status of Positive Contact Orbital Implants R C House —p 141
Surgery of Nose in Relation to External and Internal Nasal Deformities J C Dickson and B T Withers —p 145
Establishment of Criteria for Selection of Alcoholic Patients for Antabuse Therapy G C Randall and W C Rogers —p 151

Tobacco Alcohol Amblyopia.—Tobacco-alcohol (toxic) amblyopia is characterized by bilateral impairment of central vision with a centrocecal scotoma initially for red and green and with an intact peripheral field. Tobacco and alcohol usually act in conjunction, though amblyopia may develop from the use of either. Most cases of tobacco alcohol amblyopia seem to come on after a depression in general health such as physical depression, undernutrition, or, less commonly, an acute illness. The histories of two patients with tobacco alcohol amblyopia are presented. The general health of these two men, aged 32 and 57, respectively, was impaired, probably as the result of improper diet. Partial loss of central vision, bilateral scotomas, and inability to distinguish red and green traffic lights were the most important eye symptoms. By diminishing their tobacco and alcohol consumption slightly and with a proper diet, including vitamin B₁, one patient recovered completely and the other partially. Apparently the vitamin B deficiency was the most important factor, and the author is unable to say to what extent tobacco and alcohol were causative factors. If the use of alcohol and tobacco is continued, visual failure may increase, and some permanent optic atrophy may develop. Sometimes a tolerance is acquired and vision may remain the same or improve slightly. No patient becomes blind. With abstinence from tobacco and alcohol, and with a proper diet, vision improves.

Virginia Medical Monthly, Richmond

80 189-250 (April) 1953

Medullary Nailing in Fractures W M Deyerle —p 191
Trends in Surgical Treatment of Pulmonary Tuberculosis Study of 106 Cases of Pulmonary Resection. E C Drash and L B Brown.—p 198
Diverticulosis of Jejunum Frequently Overlooked Source of Gastrointestinal Bleeding. H J Warthen —p 203
Use of Rehabilitation Medicine in Complete Treatment of Hemiplegia. A R Dawson.—p 206
Treatment of Burns C H Lupton —p 209
*Acute Barbiturate Intoxication—with Case Report. W H Higgins Jr —p 218
Vioform—Its Use in Dermatologic Therapy W H Kaufman.—p 222
Rapidly Fatal Hodgkin's Disease W H Harris Jr.—p 225
Clinical Management of Pulmonary Invalid W H Barney —p 228
Paracentesis Abdominis M B Hiden —p 231

Acute Barbiturate Intoxication.—That the use of barbiturates and their derivatives is increasing is evidenced by the fact that the production of these drugs was 68% higher in 1951 than in 1940. Poisoning by barbiturates is likewise increasing. After briefly commenting on the pharmacology of barbiturates, Higgins discusses the etiology, symptomatology, and treatment of barbiturate poisoning. Treatment of barbiturate intoxication consists of gastric lavage, adequate oxygenation, prophylactic use of antibiotics, prevention of atelectasis and aspiration by keeping a patent bronchotracheal airway and frequent turning, and maintenance of proper fluid balance. Specific therapy includes the use of the amphetamines and picrotoxin. Picrotoxin, in the author's opinion, is the drug of choice. This powerful central nervous system stimulant can be safely given if administration is discontinued promptly at the first signs of muscular or nervous stimulation. It is short acting, being excreted in about 20 minutes. For this reason and because in the presence of barbiturate intoxications larger doses are easily tolerated, large doses should be given almost hourly until the patient remains responsive between injections. The author directs special attention to the synergism between alcohol and barbiturates, the case presented emphasizing the dangers of their concomitant use. Treatment consisted chiefly of administration of picrotoxin, and the woman recovered, however, severe narcosis and even death may occur when only one half the lethal dose of each drug, alcohol and a barbiturate, is combined. Many poisonings result from ignorance of this fact.

Western J Surg, Obst & Gynecology, Portland, Ore.

61 93-148 (March) 1953

Diagnosis of Tumors of Pituitary Body J Raaf and W M Craig —p 93
Routine Smears—Practical Method for Cytodetection of Unsuspected Cervical Cancer P L Martin T A Slate and J W Merritt.—p 102
Etiology and Treatment of Abdominal Distension. R. E. McKechnie —p 106
Prolapse of Gastric Mucosa Through the Pylorus Its Surgical Corrections J E Strobe.—p 111
Some Endocrine Effects of Neostigmine C F Fluhmann.—p 116
Routine Use of Pubocervical Fascia in Uterine Suspensions. H. E. Dedman.—p 129

West Virginia Medical Journal, Charleston

49 95 116 (April) 1953

Orthopedic Treatment of Arthritis. L. T Peterson.—p 95
Use of Procaine Amide Hydrochloride in Treatment of Penicillin Reaction. A. J Gianaccol —p 98
Reevaluation of Previously Treated Syphilis Cases S S Lee.—p 99
Spontaneous Changes in Presentation of Fetus During Last Half of Pregnancy R. T Rapp —p 101

Wisconsin Medical Journal, Madison

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Some New Points in Cochlear Anatomy and Their Physiologic Implications A. C. Hilding.—p 165
Homicide as Manifestation of Thalamic or Hypothalamic Disorder with Abnormal Electroencephalographic Findings E. D. Schwade and O. Otto —p 171
Protein Needs in Children: Premature and Pre-School Groups. E. T. McEnery —p 175
Antihistaminic Drugs in Dermatology J J Barrock.—p 179
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FOREIGN

Annals of Rheumatic Diseases, London

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- Rheumatism National Problem Lord Horder—p 1
 Rheumatic Complaints in an Urban Population J H Kellgren J S Lawrence and J Aitken-Swan—p 5
 Intravenous Colchicine in Management of Gouty Arthritis W Graham and J B Roberts—p 16
 Clinical Studies of Phenylbutazone (Butazolidin) and Butapyrin (Irgapyrin) in Rheumatoid Arthritis, Rheumatoid Spondylitis and Gout E G Kidd K C Boyce and R H Freyberg—p 20
 Radiotherapy in Arthritis. M H L Desmarais—p 25
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 Rheumatoid Arthritis Treated with Irgapyrin Analysis of 20 Cases G Achari B Mukopadhyaya and P Sengupta—p 32
 *Proseptasine in Treatment of Rheumatoid Arthritis L J Barford—p 35
 Effect of an Anti Histamine in Rheumatoid Arthritis D C Wilson—p 38
 Marie-Stirlipell Spondylitis in Women T L Tyson W A L Thompson and C Ragan—p 40
 Effects of ACTH on Peripheral Blood Flow in Rheumatoid Arthritis. J W Beattie and A. Woodmansey—p 43

Rheumatoid Arthritis Treated with Irgapyrin—It is known that under nonspecific stress the pituitary gland liberates corticotropin, which in turn stimulates the adrenal cortex to secrete cortical hormones with specific actions. Of these the glucocorticoids that ameliorate the symptoms of rheumatoid arthritis are the most important. It is presumed that nonspecific agents that are effective in rheumatoid arthritis bring about the amelioration of symptoms by stimulating the pituitary adrenocortical system. On this hypothesis, Irgapyrin (a mixture of equal parts of phenylbutazone and aminopyrine) was given a therapeutic trial in 4 men and 16 women between the ages of 16 and 38 with rheumatoid arthritis. Nine of the 20 patients in whom the duration of the disease varied from four to six months had a 69.83% reduction in their total circulating eosinophils four hours after the injection of the drug, and in these patients the drug brought about almost complete relief from pain and muscular stiffness. Five patients with arthritis of from 8 to 10 months duration had a 57.89% fall in circulating eosinophils. Improvement was less pronounced in the latter group, pain and tenderness did not completely subside and some residual stiffness of the affected joints remained. Two patients with arthritis of more than 12 months' duration had a 46% reduction in the circulating eosinophils and no significant amelioration of symptoms. In the remaining four patients whose disease had been present for two and a half years, Irgapyrin did not produce any significant reduction of circulating eosinophils or any improvement in symptoms. The amelioration of symptoms by Irgapyrin thus was directly proportional to the duration of the disease. The patients who improved showed a statistically significant reduction in the circulating eosinophils four hours after the Irgapyrin injection. This suggests that the drug acts by stimulating the pituitary adrenal system. Patients who did not improve had no fall in circulating eosinophils.

Proseptasine in Treatment of Rheumatoid Arthritis—Benzylsulphanilamide ('proseptasine') in doses from 0.5 gm three times daily to 0.25 gm twice daily with nine dried yeast tablets or 1 tsp (about 4 cc) of proteolysed liver daily as vitamin B supplement was given to 49 women and 10 men with rheumatoid arthritis. Follow up was complete in 44 of 59 cases, 27 of these patients were aged 50 or more and 17 were aged less than 50. The duration of the disease ranged from 3 months to 25 years, and the duration of treatment with 'proseptasine' from 1 to 46 months. Of these 44 patients, 32 were improved, 11 were unchanged, and 1 became worse. Of 12 patients treated for a year or longer, 11 were improved and one was unchanged. The relapse rate when the drug was discontinued, was high and relapses occurred within a few weeks. When treatment was resumed the response to the drug was the same as before. There was no constant effect on the blood sedimentation rate. Toxic side-effects occurred in five patients, so that administration of the drug had to be discontinued. Prolonged treatment did not adversely influence the blood picture. Although the series was too small for drawing definite conclusions, it would appear that 'proseptasine' may help to hold rheumatoid arthritis in check until a remission occurs.

Archiv f Hygiene u Bakteriologie, Munich

137 1-78 (No 1) 1953 Partial Index

- Contribution to Bacteriology of Anaerobic Corynebacteria and Their Occurrence in Pathological Material H Seeliger—p 1
 Second Contribution to Problem of Mechanism of Infection with Neurotropic Types of Virus M Nikolitsch—p 11
 Small Shigella Dysenteriae Epidemic in Münster District P von dem Esche—p 20
 *Course of and Observations in Rural Epidemic of Poliomyelitis A Kiaflla—p 43

Rural Epidemic of Poliomyelitis—The occurrence of an epidemic of poliomyelitis in three adjacent rural districts of Upper Franconia, Germany, during the period from May to October, 1952, is reported. Of 83 male and 60 female hospitalized patients, 79 (55%) were between the ages of 1 and 7 years, 37 (26%) between the ages of 8 and 18 years, and 27 (19%) between the ages of 19 and 40 years. Nine of the 11 deaths (a mortality rate of 7.7%) occurred in small children and only 2 in adults. Meningism was the predominant symptom in most of the patients. Prolonged phenomena of irritation occurred occasionally in addition to pareses. In general the disease was severer during the first weeks of the epidemic than during the last weeks, pareses occurred more frequently in the beginning of the epidemic, while later on the aparetic-encephalic type was observed more frequently. The clinical course showed a tendency favorable to regression. The author considers it as highly significant that there was a high incidence of infection in persons who shared the same home, as well as in members of a whole group owing to direct contact with patients or to contact with asymptomatic carriers. Contact could be proved in 52 of the 143 hospitalized patients, and 13 chains of contact or groups of patients could be demonstrated. Thus contagiousness has been demonstrated, and careful observation of the routes of infection convinced the author that the temporary and constant carriers of the virus play a predominant part in causing by various means of transmission sporadic cases of poliomyelitis. On the other hand, the patients with the acute disease may be responsible for the occurrence of the disease in whole groups, first through direct contact (infection by droplets during the presence of respiratory manifestations) and later on by dust infection or flies. In contrast to previous observations the epidemic reached its peak in July, while there was only a mild secondary flare up in August and September. The period of the highest incidence was characterized by abnormal dryness and heat, a very low water level in rivers and streams, and a severe fly plague. As a result of his experience the author emphasizes that officially controlled measures of quarantine are imperative as a preventive means in combating the epidemic. Research should be directed to the early control of carriers of the virus.

Belgisch Tijdschrift voor Geneeskunde, Leuven

9 193 236 (March) 1953

- Pulmonary Cancer III Attack on Lung Cancer R. Korteweg—p 193
 Catheterization of Heart Its Use in Study of Acquired Heart Disease K. Vuylsteek R. Pannier A. Van Loo and J. Verstraeten—p 198
 *Presacral Induction of Pneumoperitoneum J. Bekaert, G. Mortier and C. Van Beylen—p 212

Presacral Induction of Retropneumoperitoneum—Bekaert and associates review the history and evaluate various techniques for roentgenologic visualization of the parenchymatous organs in the retroperitoneal space, pointing out that the presacral method of insufflation was developed and first described in 1947 and 1948 by R. Rivas of Spain. They show that this method of extraperitoneal pneumography is excellent for the visualization of the adrenals, kidneys, spleen, liver, and psoas shadow. It is valuable also in the study of the pancreas and of the abdominal portion of the esophagus. It provides an easy way of inducing pneumomediastinum, and some authors assert that its preoperative use simplifies interventions on the rectum, sigmoid, kidney, and spleen because it separates the various layers. With all these advantages, the presacral insufflation technique of R. Rivas involves no greater danger than any other method of examination.

British Journal of Dermatology, London

65 77-120 (March) 1953

- Case of Allergic Cutaneous Vasculitis (Arteriolitis Allergica) M Rulter —p 77
- *Observations on Persistence of Skin Sensitivity with Reference to Nickel Eczema J K Morgan —p 84
- Structures Resembling Fuseaux in Case of Ringworm of Scalp Due to *Microsporum Canis* Bodin and *Microsporum Audouini* Gruby G Daniels —p 95

Skin Sensitivity in Nickel Eczema.—Among 58 patients with contact dermatitis who reacted positively to patch tests with one drop of 10% nickel sulfate solution there were only two in whom the primary source of the sensitivity was industrial (nickel plating). Nickel plated garters were the source in 55 patients, and a nickel plated watch in one patient. The eruption in many of these patients involved not only the primary site of sensitization but also other sites where nickel was in contact with the skin as a result of the wearing of earrings, brooches, necklace clasps, medallions, metal watch straps, and even safety pins. Furthermore 31 of these patients when first seen had secondary eczematous spread to sites other than those in contact with nickel, particularly to the elbow flexures, face, and neck. The sensitivity of 54 of these patients was reassessed after an interval ranging from 1½ to 11 years. Persisting sensitivity was confirmed in 31 by the presence of contact eczema with continued exposure, or freedom if contact was avoided, 23 patients gave negative results to patch testing for nickel sensitivity, but 18 of these continued to have eczema. It is suggested that in some of these patients, the specific sensitivity to nickel was merely a transitory phase in a series of eczematous reactions, many of them nonspecific in character. The prognosis of patients with positive patch tests to nickel involved many factors, in some it appeared to be independent of the continuance of contact with nickel. Apparently the constitutional background is often of greater prognostic significance than the specific external agent.

British Medical Journal, London

1 633 686 (March 21) 1953

- Changing Concepts of Health and Disease with Particular Reference to Psychosomatic Medicine R R Bombard —p 633
- Anti-Curare Agents A R Hunter —p 640
- Use of Intravenous Ergometrine to Prevent Post Partum Haemorrhage J D Martin and J G Dumoulin —p 643
- Haemoglobin Levels in Group of Elderly Persons Living at Home Alone or with Spouse W Hobson and E K Blackburn —p 647
- Clinical Trial of Phenylindandione as Anticoagulant M Toohey —p 650
- Treatment of Nausea and Vomiting of Pregnancy with Antihistamines S Lask —p 652
- Acute Nitrobenzene Poisoning with Transient Amino-Aciduria W E Parkes and D W Neill —p 653
- Acute Tetrachlorethane Poisoning Report on Two Fatal Cases A K Mant —p 655
- Anal Fistula with Extension to Thigh E Wilson —p 656
- Polyposis of Small Intestine with Pigmentation of Oral Mucosa Report of Two Cases A P Kitchen —p 658

Canadian Medical Association Journal, Montreal

68 319-422 (April) 1953

- Report of a Cancer Study 1949 R P Vivian —p 319
- Anatomist as a Witness I M Thompson —p 327
- Tuberculosis in Recent Immigrants O T Cheung —p 330
- Complications of Blood Transfusion B P L Moore —p 332
- Clinical Study of a New Sulfonamide in Treatment of Urinary Infections J P Bourque and J Joyal —p 337
- Treatment of Hypertension with Oral Hexamethonium C B Rich and W H Holubitsky —p 342
- Haematological Values in Elderly People D M Jefferson W W Hawkins and M C Blancher —p 347
- Carcinoma Stomach—The Case for Total Gastrectomy A A Klass —p 350
- Heart Disease and Pulmonary Tuberculosis G Phillips —p 353
- Cardiac Compression from Funnel-Chest (Chone-Chondrosteron) A Vogelsang —p 356
- Use and Misuse of Plaster Walking Boot O Rostrup —p 360
- *Retroversion of Uterus as a Normal Position I A Perlin —p 363
- Electrocardiographic Response to Standard 2-Step Exercise Test J Wener A A Sandberg L Scherlis and others —p 368

Retroversion of Uterus.—Of 92 women with retroversion of the uterus treated by suspension at the Victoria General Hospital in Halifax between 1925 and 1946, only 44 were followed up. Of these 44, 20 had uncomplicated retroversion, and of

these, only 7 (35%) obtained complete relief from their symptoms following the operation. Twenty four patients had associated with the retroversion some other complicating factor such as cervical erosion, cervicitis, cervical laceration, or fibroid, for which surgical intervention was also done. The uterus in all these patients was mobile. In this group 14 patients (60%) obtained complete relief of their symptoms. The authors feel that the cures obtained in these patients were due to the other surgical intervention rather than to the suspension. In a survey of 2,157 women delivered in the department of obstetrics of Dalhousie University in the last 26 years no evidence was found that the uterus observed to be retroverted at the 8th or 10th day of the puerperium drains less efficiently than the anteverted uterus. In 16 patients found to have a retroverted uterus at the seventh day post partum, in 8 (50%) it had become anteverted by the sixth week. The author believes that in a considerable number of women a change in position from ante- to retroversion and vice versa occurs continually. More medium and small than large uteri were found to be retroverted at the 10th day and at the 6th week post partum. It would seem, therefore, that neither is retroversion caused by a large uterus nor does retroversion itself cause the uterus to be large. There was no evidence that puerperal women with retroversion are more likely to have complaints referable to delivery at the sixth week post partum than the women with an anteverted uterus. There was no clear-cut evidence that retroversion predisposes to or is usually associated with uterine prolapse. It has been the author's policy never to treat a retroversion at the 10th day or 6th week post partum by pessary replacement or knee-chest position. Of 1,118 women delivered between 1928 and 1949 whose uteri were never replaced or supported with a pessary when found retroverted, 24 attributed to their delivery certain complaints such as backache and low abdominal pain. Of these 24 women, 13 were examined at the 10th day post partum and the uterus was found retroverted in only one, seven were examined at the sixth week and the uterus was found retroverted in three. Three of the 1,118 women have had suspensions done. One, whose uterus was not retroverted, had the suspension for prolapse, the two others had the operation done for sterility and neither became pregnant. It is suspected that all these findings may be equally true of the retroverted uterus in the nulliparous women, since the incidence of retroversion seems to be the same in nulliparous as in parous women. As a result of his experience, the author believes that retroversion is a normal position for the women in whom it occurs, and that, unless complicated by such conditions as endometriosis or tender prolapsed ovaries that cause dyspareunia, it is no more likely to produce symptoms than the anteverted organ. Surgical treatment of an uncomplicated retroverted uterus is unlikely to relieve the symptoms attributed to the retroversion.

Deutsche Zeitschrift für Nervenheilkunde, Heidelberg

169 421-506 (No. 6) 1953 Partial Index

- Total Circulation and Cerebral Blood Perfusion in Intracranial Angiomas and Aneurysms A Bernsmeier and K. Siemons —p 421
- Medicinal Treatment of Myasthenia H. Bauer and O. Schmid —p 427
- *Results of Liver Function Tests in Organic Nervous Diseases C. Faust —p 438
- Disturbances of Metabolism and Central Nervous System G. Peters —p 446

Liver Function Tests in Organic Nervous Diseases.—A series of liver function tests were employed in 119 patients with diseases of the nervous system in an attempt to study the entire functional spectrum of the liver. Included in the series were the thymol turbidity test, cholesterol test, zinc sulfate test, Takata-Ara test, galactose tolerance test, hippuric acid test, and paraoxyphenylpyraccemic acid tolerance test. Determinations of serum bilirubin and urobilinogen were made, and the excretion of azorubin was tested. In patients with postencephalitic parkinsonism the results of the tests suggested latent impairment of the liver, while only minor deviations from the normal were observed in patients of advanced age with parkinsonism. In patients with paralysis agitans liver function was not disturbed. In nearly all the patients with multiple sclerosis disturbance of the liver function was indicated by the results of the paraoxyphenylpyraccemic acid tolerance test, the hip

puric acid test, and the galactose tolerance test (liver specific tests), the thymol turbidity test and the cholesterol test revealed considerable deviations from the normal. The results of these two latter tests paralleled the course of the disease. In patients with hereditary degenerative diseases deviations from normal could not be detected with the liver specific tests, and the results of the lability tests did not lend themselves to evaluation. In patients with polyneuritis, the results of the tests varied with the pathogenesis. Patients with polyneuritis associated with chronic alcoholism had positive results from the galactose tolerance test, while patients with severe Landry's paralysis and with great increase in the protein in the cerebrospinal fluid without corresponding increase in cells (as in Guillain Barré syndrome) had negative results from the specific liver function tests. Nearly three-quarters of the patients with nonspecific inflammatory diseases of the nervous system had positive results from the paraoxyphenylpyraccemic acid tolerance test, thymol turbidity, and cholesterol test. To do justice to the variety of the metabolic process, it seems important to use many methods of examination in order to determine the significance of disturbed partial function of the liver in diseases of the nervous system.

Journal of Tropical Medicine and Hygiene, London

56 49-72 (March) 1953

- Some Observations on Intestinal Parasites of Man and Their Diagnosis L. Freedman—p 49
Antibiotic Treatment of Infective Gangrene of the Mouth D. B. Jeiliffe—p 53
*Fluorosis in the Butana Sudan D. A. Smith, H. A. Harris and R. Kirk—p 57
An Antidote to Scorpion Toxin A. H. Mohammed and M. el Kareml—p 58

Fluorosis in the Sudan.—A focus of endemic fluorosis was discovered in the Sudan during an investigation into health and nutrition at Abu Deleig in the Butana desert in December, 1952. During the examination of schoolboys, aged 7 to 14 years, many instances of abnormality of the dental enamel were noted. These were characteristic of fluorosis and were provisionally diagnosed as such. Grade 1 changes included white, opaque, chalky areas of the enamel of permanent teeth that were most commonly seen on the cusps of premolars and first molars and on the distal half of the central and lateral incisors. Grade 2 changes included dark yellow brown discoloration, often in a pattern of broad horizontal bands or wavy parallel lines, that were most prominent in the upper incisors. Grade 3 changes were pitting and mottled discoloration of the enamel, mainly on the incisors. Grade 1 changes were found in 39.6% of 134 boys, grade 2 in 17.1%, and grade 3 in 3.7%, the total incidence being 60.4%. The incidence of caries was low. The incidence of dental fluorosis in adults was similar to that in the children. Nine out of 10 samples of well water contained fluorine in concentrations between 1.10 and 4.00 parts per million.

Lancet, London

1 555 606 (March 21) 1953

- Problem of Peptic Ulceration H. Ogilvie—p 555
Involvement of Autonomic Nerve Fibres in Diabetic Neuropathy M. M. Martin—p 560
Specificity of Incomplete Cold Antibody in Human Serum H. Crawford, M. Cutbush and P. L. Mollison—p 566
Isolation of Pituitary Antidiuretic Peptide and Similar Urinary Peptide by Paper Chromatography G. C. Arnell and H. E. C. Wilson—p 568
Treatment of Delirium, Psychosis and Coma Due to Drugs J. Gould—p 570
Investigation of Antituberculous Substances: Agar Diffusion Method Using Mycobacterium Smegmatis M. B. King, R. Knox and R. C. Woodroffe—p 573
Effect of Butazolidine on Excretion of Water and Electrolytes J. Green and P. O. Williams—p 575
*Syndrome Associated with Ingestion of Chemically Improved Flour G. C. Sheldon and A. Yorke—p 577

Allergic Response to Chemically "Improved" Flour.—The authors present a detailed history of a woman, aged 50, who had no personal or family history of allergic disorders but who had had a skin disorder since 1940. The chronic eruption involved the face and neck and also the upper limbs symmetrically. It was subject to acute irregular exacerbation, and

pruritus was troublesome during the acute phase. Because of the appearance of the hands, she was treated for dysidrotic eczema but did not respond. Because depression was a dominant feature of the recurring skin episodes, accompanied by sporadic flushing, neurodermatitis associated with the climacteric was thought of, but despite varied treatment the condition persisted until 1952, with occasional exacerbations. In March, 1952, she noticed that when she came into contact with flour, it increased the severity of her existing lesions, but the result of a flour free diet indicated that ingestion rather than external irritation was responsible. An authority on the chemistry of milling provided bread prepared from flour not treated with chemicals, and the eating of such bread caused no skin lesions. Whenever she ate bread made from flour treated with nitrogen trichloride, the lesions on hands, arms, face and neck became manifest within 24 hours. The skin irritation was generally accompanied by mental disturbances in the form of insomnia, irritability, and what the patient herself identified as 'a morose depression'. An alternative to nitrogen trichloride for the chemical treatment of flour is chlorine dioxide, and so the authors decided to ascertain the effect on their patient of flour treated with this chemical. The woman was given bread prepared from flour treated with chlorine dioxide unknown to her. Within three hours of eating this bread, she had pruritus of the hands and forearms, and within 24 hours there was pruritus of face and neck, which felt "dry and tight," together with anorexia and insidious mental depression. Examined after 48 hours, she presented essentially the same clinical picture as that following ingestion of flour treated with nitrogen trichloride, but some of the symptoms, particularly the constitutional ones, such as anorexia, were severer. The question arises of whether this is a rare case of allergy or merely the first recognition of a common disorder.

Maandschrift voor Kindergeneeskunde, Leyden

21 41-72 (Feb) 1953

- *Administration of Corticotropin (ACTH) and Cortisone in Rheumatic Carditis S. van Creveld and F. Kuipers—p 41
Erythroblastosis Fetalis and Blood Group Kell J. J. van Loghem, Jr. H. de Raad and A. van Haltem—p 63

Corticotropin and Cortisone in Rheumatic Carditis.—Van Creveld and Kuipers show that the prognosis of rheumatic carditis becomes more unfavorable as the number of relapses increases. Fatalities from this disease are due chiefly to the sequelae, that is, to valvular lesions. Apart from the prevention of relapses by prophylactic methods, the authors feel that improvement in prognosis will be effected mostly by early treatment of the rheumatic carditis with corticotropin and cortisone. From a survey of the literature the authors gained the impression that early treatment with adequate doses can prevent persistent damage, such as valvular lesions, in a considerable number of cases. They present the histories of seven patients in whom they employed cortisone. Two children died, but in two others a fatal outcome was prevented by the treatment. All children showed evidence of a valvular lesion after treatment was completed, despite the fact that it was instituted within two weeks after the first clinical signs of cardiac involvement appeared. From the literature, the authors gained the impression that corticotropin might be more effective than cortisone in preventing valvular lesions.

Minerva Medica, Turin

44 365-404 (Feb 14) 1953 Partial Index

- Pathology of Difficult Child and Only Child F. Copello—p 365
*Behavior and Measurement of New Antituberculous Preparation Derived from Combination of Streptomycin with Congo Red: Study of Spinal Fluid of Persons with Tuberculous Meningitis G. Pescetti and E. Deste-fanis—p 369
First Clinical Results of New Drug in Treatment of Coronary Insufficiency P. Cantù and F. Tibaldi-Chiesa—p 372
*Hepatorenal Fatty Degeneration Caused by Aureomycin A. Pagliel—p 384

Streptomycin Combined with Congo Red in Tuberculous Meningitis.—Streptomycin combined with congo red in a 1:9 ratio was given to two persons with tuberculous meningitis to study the meningeal permeation and evaluate the levels and

the elimination curves of the antibiotic in the spinal fluid. In one of the patients the blood levels were also determined. After one intravenous injection of 0.5 gm, the streptomycin level in the spinal fluid was 2 μ g per cubic centimeter and it doubled within the second hour. In the blood, however, the concentration was lower, and it did not increase after the first hour. Moreover, the antibiotic was not present in the blood 10 hours after the injection, whereas it was still found in small traces in the spinal fluid 24 hours later. The preparation seems to become fixed electively in the inflamed meninges, and since the transudate current proceeds from the blood to the fluid, the higher levels that were found in the latter are easily understood. When after 24 hours an additional 0.5 gm was injected, the streptomycin level in the spinal fluid was 8 to 10 μ g per cubic centimeter, but 24 hours later it was again 4 to 5 μ g. This dose was repeated every 24 hours for several days and a cumulative effect was observed, however, 24 hours after the injection never more than 4 to 5 μ g of streptomycin were found per cubic centimeter of fluid. The cumulative effect in the fluid is analogous to the effect it had in the tissues as the authors had previously demonstrated in another study. After the first two days of therapy, the fluid, like the tissues, assumed a pinkish color, which became progressively red. The intensity of the color was directly proportional to the concentration of the preparation in the fluid.

Fatty Degeneration of Liver After Aureomycin Therapy—A 7-year-old girl was hospitalized in severe general condition with acute diffuse peritonitis due to a perforating appendicitis. Successful laparotomy was performed, and the early postoperative course, during which the patient was given aureomycin in addition to other medications, was good. On the day of the operation and the first and second postoperative days she received intravenously 100 mg of the drug every four hours (an average of 24 mg per kilogram of body weight), and on the third and fourth days 250 mg orally every four hours (an average of 60 mg per kilogram of body weight). A total dose of 4,800 mg was given. The patient's general condition was improving and recovery seemed to be assured, when suddenly on the sixth postoperative day, elevated temperature, tachycardia, dyspnea, mild diffuse edema, subicterus at the sclera, and signs of hemorrhagic diathesis were observed. Small amounts of black urine containing large quantities of albumin and urobilin, and hyaline and granular casts were passed. The Takata Ara test indicated pronounced liver damage. A picture of hepatorenal coma developed, and the patient died on the eighth postoperative day. At autopsy all signs of peritoneal inflammation had disappeared. The liver, however, was greatly enlarged, tender, flabby, doughy, and opaque dark yellowish colored. Microscopic examination revealed fatty degeneration that was more pronounced near the Kiernan's spaces, the trabeculae could no longer be distinguished, but there were no alterations in the capsule. The kidneys were also slightly enlarged but had a normal consistency, dark yellowish lines could be seen through the capsule. The child had recovered completely from peritonitis, but had died of acute hepatorenal insufficiency secondary to fatty degeneration of the liver caused by the toxic effects of aureomycin. The author suggests that the degenerative effect of aureomycin on some essential organs is due not to a toxicity intrinsic to the drug itself but rather to the peculiar constitution and the specific reaction of some allergic persons. Excessive doses and the intravenous route of administration may also be responsible for these side-effects.

Wiener medizinische Wochenschrift, Vienna

103 181 198 (March 7) 1953 Partial Index

- *Prolonged Controlled Hypotension. Contribution to Conservative Treatment of Intracranial Hemorrhages and Acute Cerebral Hypertension. L. Schönbauer, R. Kucher and K. Steinberglthner—p 185
- Controlled Hypotension with Depressin (Hexamethonium Preparation) and Pendiomid. A. Benke—p 187
- Dysmenorrhea From Social Medical Point of View. K. Bockhorn—p 189

Prolonged Controlled Hypotension in Treatment of Intracranial Hemorrhages—Depressin, a proprietary hexamethonium chloride preparation, was employed to produce prolonged controlled hypotension in a 39 year-old woman in her third

attack of apoplexy and in a 43 year-old woman who after an attack of influenza suddenly had become unconscious and paralyzed on her left side. In the first patient the blood pressure was maintained for 12 hours at 80/55, this induced hypotension was produced by intravenous injection of a total dose of 380 mg of the ganglion blocking agent and postural ischemia combined with continuous administration of oxygen. After seven hours of controlled hypotension Babinski's sign and clonus disappeared on the left side. After nine hours Babinski's sign disappeared also on the right side, but recurred after 11 hours, and the patient died suddenly 12 hours after the start of the controlled hypotension. Necropsy revealed hypertrophy of both ventricles, general vascular sclerosis, a recent focus of softening in the right internal capsule, and old foci of softening in the basal ganglia. In this case, the disappearance of the pathological reflexes during controlled hypotension is to be considered noteworthy. In the second patient who was in deep coma with symptoms of acute cerebral hypertension and increasing deterioration of her general condition, the systolic blood pressure of 240 mm Hg was reduced to 50 mm Hg by the intravenous administration of an initial dose of 60 mg of hexamethonium chloride, and blood pressure was maintained for 17 hours at values varying from 40 to 60 mm Hg by the administration of a total dose of 300 mg of the drug. The systolic blood pressure then gradually rose to 80 mm Hg and remained at this level until 25 hours had passed from the start of the induced hypotension. The patient then awakened and orientation was perfect. After 10 hours of controlled hypotension, paresis and Babinski's sign had disappeared. Arteriography of the carotid artery and lumbar encephalography did not reveal definite pathological changes. Lumbar puncture revealed more than 500 leukocytes and a high protein content in the spinal fluid. A tentative diagnosis of encephalitis was made, the patient was treated with antibiotics, and she was discharged free of complaints six weeks after admission to the hospital. The patient died six weeks later, and necropsy revealed diffuse demyelination of the white matter of the hemispheres, severe lesions of the basal ganglia, and neuronal degeneration of the brain stem.

Zentralbl Arbeitsmed u Arbeitsschutz, Darmstadt

3 1-32 (Jan) 1953 Partial Index

- Question of Liver Damage After Trinitrotoluol Poisoning. H. Meyerling and A. Dietze—p 4
- *Examination of Lead Line in Ultraviolet Light. F. Dangel, O. Frank and V. Lachnit—p 6
- Poisoning with Lead Tetraethyl. Case Reports. K. Müller—p 8
- Caution with Aluminum Dust. Unexpected Explosion. K. Flick—p 9
- Chronic Intoxications in the Manufacture of Moth Remedies Consisting Chiefly of Paradichlorobenzene. K. Wallgren—p 14
- Prophylaxis of Poisoning by Fluorides During Welding. O. Hettche and H. Merck—p 15

Examination of Lead Line in Ultraviolet Light—The lead line at the gums of patients with lead poisoning represents a deposit of lead sulfide that results from the action of hydrogen sulfide, which is present in the mouth (particularly if teeth are not kept clean), on the lead albuminate excreted by the capillaries of these patients. This results in a bluish black discoloration at the edge of the gum. Stimulated by reports on fluorescence phenomena in the oral cavity, particularly the red fluorescence of dental tartar, Dangel and associates examined the gums of persons with and without lead poisoning under ultraviolet illumination. In a definite lead line there appeared under the ultraviolet light a dark zone that differed from the bluish fluorescing gums. In one patient with lead poisoning the dark line was seen to gradually disappear while he received treatment for lead poisoning. In some doubtful cases a narrow lead line could be clearly differentiated from dental tartar under the ultraviolet light, but in others in whom examination under ordinary light suggested a lead line examination under ultraviolet light clearly demonstrated merely the red fluorescence of dental tartar. The authors admit that the bismuth line, which may develop in patients receiving bismuth in the treatment of syphilis, cannot be differentiated from the lead line under ultraviolet light, but the occupational and clinical history should explain whether lead, bismuth, or mercury is the cause.

BOOK REVIEWS

Hypnosis in Modern Medicine. Edited by Jerome M. Schneck, M.D., Clinical Associate in Psychiatry, College of Medicine, State University of New York, Brooklyn. Cloth. \$7.50. Pp 323. Charles C. Thomas Publisher 301 327 E. Lawrence Ave., Springfield Ill. Blackwell Scientific Publications Ltd. 49 Broad St. Oxford England. Ryerson Press 299 Queen St. W. Toronto 2B 1953

Since the first child was rhythmically crooned to and rocked by its mother and since the first patient was calmed and soothed by the first medicine man, suggestion and hypnosis have retained their essential place among the healing arts. The variegated heritage of such therapeutic practices has never quite lost its magical attraction. Proof of this are the four main derivatives of Mesmer's "animal magnetism" today: the cults of the "magnetic belt" and devices still sold by the millions to the gullible, Christian Science as derived from Mesmer through his disciples Phineas Quimby and Mary Baker Eddy, psychoanalysis via the hypnotists Charcot and Bernheim and their student Sigmund Freud, and the current vogue of hypnosis itself. The wishful yearnings underlying such regressively esoteric approaches to therapy have given rise, since Mesmer's death, to thousands of books on hypnosis, this volume is the latest.

According to its editor, the distinguishing characteristic of this book is that each section was written by an expert with special experience in his subject. The first chapter, a historical account of medical hypnosis written by George Rosen, sets a high standard by reviewing the unscientific origins and fantastic nature of much of the theory about hypnotic phenomena. Unfortunately, many of the other contributors seem not to have studied this introduction very carefully, indeed, William T. Heron, in his section on instruction in hypnosis, states "Actually, there is little in the history of the subject which is useful to the modern practitioner" (page 289). In line with this, the various intervening chapters on hypnosis in internal medicine, surgery, anesthesiology, obstetrics and gynecology, and dentistry repeat a pattern that is now familiar to the serious student of hypnology, a pattern of clinical daring leading to striking observations of significant phenomena, unfortunately followed too often by uncontrolled interpretations and over-enthusiastic therapeutic inferences. As exceptions to this, the chapters by Schneck and by Ambrose on hypnosis in adult and child psychiatry are good surveys by writers obviously familiar with special techniques, but, here again, the work of others is too often accepted on purely impressionistic bases. With regard to the physiological substrate of hypnosis, M. J. Bass, after a somewhat diffuse review of the literature, concluded, "Although hypnosis differs from sleep at the present time, however, reliable criteria for distinguishing hypnosis from the waking condition are not available" (page 251).

The volume is well documented and indexed and should be a useful addition to the reference library of any psychiatrist, psychologist, or research worker already active in the field. Some of its contents, however, may be misleading to general practitioners, medical students, and others who, without specialized training and experience, may attempt to apply certain of its recommendations to clinical practice.

Hearing Aids: Their Use, Care, and Repair. By Matthew Mandl. Cloth. \$3.50. Pp 158 with 64 illustrations. The Macmillan Company 60 Fifth Ave. New York 11 1953

The construction and operation of the modern electronic hearing aid are presented briefly and simply in this short book. It is well illustrated with photographs and line drawings and should be of interest to hearing aid users who have some knowledge of radio electronics. The physician, audiologist, and hearing aid salesman interested in basic hearing aid principles will find this book a helpful introduction to the subject.

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

Textbook of Virology for Students and Practitioners of Medicine. By A. J. Rhodes, M.D., F.R.C.P., Research Associate, Connaught Medical Research Laboratories, School of Hygiene, University of Toronto, Ontario, and C. E. van Rooyen, M.D., D.Sc., M.R.C.P., Research Member, Connaught Medical Research Laboratories. Second edition. Cloth. \$8. Pp 561 with 76 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1953

This textbook covers viral as well as rickettsial infections of both man and animals, with emphasis on human diseases caused by or associated with these agents. The authors have wisely avoided the unsettled formal classification of viruses and rickettsias by grouping the subject matter according to the regional and clinicopathological characteristics of the infections. The first and larger portion of the book is devoted to virus infections and is introduced by a discussion of their fundamental characteristics, response to specific therapy, and laboratory diagnosis. The general biological character of rickettsias is similarly presented to introduce the smaller portion of the text. Discussions of both types of infection are presented under the names of the diseases, a feature that will appeal to medical students and practitioners. The authors present the following aspects of each disease: clinical features, pathology and pathogenesis, epidemiology, properties of the causal agent, immunity, specific treatment, and laboratory diagnosis. Ample space is given to discussion of the immunologic reactions important in the diagnosis and study of viruses and rickettsias. The authors are obliged to utilize numerical and alphabetic symbols that have been introduced to identify various strains and types of these micro-organisms, but the retention of such chemical abbreviations as LGI for lymphogranuloma inguinale (venereum), EKC for epidemic keratoconjunctivitis, CCA for chick cell agglutination, and HA for hemagglutination tests should not be encouraged. The abbreviation ACTH is also employed in place of the adopted generic name, corticotropin.

The second edition of this textbook will be welcomed by teachers, students, and physicians as a highly practical source of basic information for both introductory and advanced studies of the subject. Each section is followed by references, and the general index is arranged for convenience in locating the available information. At the time of printing, the results of the recently reported studies on the prophylactic use of gamma globulin in poliomyelitis were not available to the authors.

Comotio Cerebri: Cerebral Concussion and the Postconcussion Syndrome in Their Medical and Legal Aspects. By Cyril B. Courville, M.D., Director, Ramon Cajal Laboratory of Neuropathology, Los Angeles County Hospital, Los Angeles. Cloth. \$5.25. Pp 161 with 12 illustrations. San Lucas Press, 316 N. Bailey St. Los Angeles 33, 1953

This is a practical book for students and practitioners. It is of special value to attorneys and expert witnesses, those who have to deal with the problem in court. The author has reviewed not only the medical but also the general literature. He has drawn many descriptive references to the symptomatology of concussion from legends, folk tales, and history. It is clear that concussion has been universally recognized as a distinct clinical entity. The review shows how physicians related themselves to the problem and how knowledge of the subject slowly developed through the centuries.

The author is impressed by the fact that persons who suffer from simple concussion too often are not adequately compensated, and that attorneys and physicians employed by insurance companies frequently decide that affected patients are intentionally attempting to defraud.

The book is particularly valuable in its analysis of the mechanism of concussion. Symptoms, diagnosis, and management are adequately discussed. Two distinct schools of thought have arisen, one concludes that all post-traumatic symptoms are to be explained on an organic basis, the other, at the opposite extreme, assumes that all post-traumatic symptoms in concussion are purely functional and should be ignored.

The author concludes that the characteristic residual symptoms of commotio cerebri cannot be lightly dismissed as malingering or a compensation neurosis, that, while purely psychic postconcussional manifestations may also occur, the counterfeiter need not be confused with the genuine, and that an intelligent, comprehensive therapeutic approach to the problem has potentialities for quicker relief of the patient's symptoms and for lowering of cost to insurance carriers.

Practical Clinical Chemistry: A Guide for Technicians. By Alma Hiller, Ph.D. Associate Attending Biochemist in Charge of Clinical Chemistry, Presbyterian Hospital of City of Chicago. Cloth \$6.50. Pp. 266. Charles C. Thomas Publisher, 301 327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St. W., Toronto, 2B, 1953.

This book is well written, and the style is simple enough so that even the technician untutored in chemistry may easily use it. An outline for each procedure follows a comprehensive narration and explanation of the principles and techniques involved. These outlines are reprinted on detachable, perforated sheets at the back of the book for the convenience of the technician.

The selection of methods is generally excellent. The only controversial method is that for the estimation of nonprotein nitrogen of blood. The hypobromite deamination method presented is certainly simpler than the old micro-Kjeldahl method, but there is much contradictory literature concerning it, and at least one researcher reports yields as low as 78% of the true nonprotein nitrogen content with the hypobromite deamination method. The author has selected many methods that require the use of a spectrophotometer. For some time, spectrophotometers have been within the economic reach of analytical laboratories, however, for those laboratories still not equipped with spectrophotometers, the usefulness of this book might have been extended by presenting, for each colorimetric assay, an alternate procedure in which a visual colorimeter is used. It should be made quite clear, however, that the superior accuracy of the spectrophotometer is adequate reason for its selection over a colorimeter if the choice can be made.

Dysarthric Speech (Speech in Cerebral Palsy) By Emil Froeschels, M.D., President, International Society for Logopedics and Phoniatrics. New York: Magnolia, Mass., 1952. \$3.75. Pp. 172. With 34 illustrations. Expression Co., Publishers.

Defective speech, particularly in the cerebral palsy patient, is considered in this text. The anatomic lesions of the central nervous system and the vocal mechanisms that account for dysarthric speech are presented briefly. The use of proper neuroanatomic nomenclature in the rather limited discussions requires that the lay speech therapist, for whom the book is primarily written, have a good basic understanding of neuroanatomy in order to gain much from this portion of the text. The congenital dysarthrias and those acquired early in childhood are considered from the symptomatic and therapeutic standpoint. These same basic principles may also be applied to the dysarthrias resulting from injuries and cerebrovascular accidents in adults. The format of the book is attractive, and it is illustrated with simple line drawings. Much interesting reference material is also included.

Preventive Aspects of Chronic Disease: Conference Proceedings, March 12-14, 1951, Chicago, Illinois. Sponsored by Commission on Chronic Illness. Co-Sponsors: National Health Council, U. S. Public Health Service. Paper \$2.50. Pp. 311. Health Publications Institute, Inc., Raleigh, N. C., 1952.

This is a report of the conference of physicians, social workers, and others representing 43 organizations interested in prevention of chronic disease. These diseases are characterized by permanence, residual disability from some acute condition, and an irreversible disease process. Special instruction is necessary for the patient and all who attend him in order that some degree of rehabilitation might be obtained. A long period of observation, supervision, and care must be expected. This involves early diagnosis, thorough and complete cure of the acute condition if possible, and follow-up from the social as well as the medical side of the problem. The physician is not always sure when he has cured a patient completely. Symptoms

may subside, but the condition may become permanent before anyone is fully aware of what has happened. Multiple sclerosis and poliomyelitis are examples of such conditions, and chronic arthritis is always possible in any case of acute rheumatism.

Prevention is the keynote of this 300 page monograph, but all of its authors are well aware of the limitations of the World Seventeen diseases are discussed, and the factors of heredity, predisposition, and carelessness and neglect through ignorance and willful disregard of the principles of hygiene and sanitation are considered. Much of the present knowledge of chronic diseases is included, along with problems that require further study, analysis, and integration.

Plastic Surgery at the New York Hospital One Hundred Years Ago with Biographical Notes on Gurdon Buck. By Herbert Conway, M.D., and Richard B. Stark, M.D. Forewords by John Hay Whitney, Stanley Bayne Jones, M.D., and Frank Glenn, M.D. Cloth. \$5. Pp. 110. With 11 illustrations. Paul B. Hoeber, Inc. (medical book department of Harper Brothers), 49 E. 33rd St., New York 16, 1953.

This small volume tells the story of the development of plastic surgery at the New York Hospital 100 years ago. It is the story of Gurdon Buck, bold and imaginative surgeon, who is regarded as the pioneer of plastic surgery in the United States. Buck is probably remembered by the medical profession mainly for "Buck's extension" and "Buck's fascia," but his most important contributions were in the field of plastic surgery. In 1876 he wrote an important treatise on the subject that was translated into three languages. This book is attractively printed and is illustrated with photographs of patients operated on by Buck. It should be of interest to surgeons and to the medical profession in general.

The Biochemistry of Gastric Acid Secretion. By Edward J. Conway, M.D., D.Sc., F.R.S. Professor of Biochemistry and Pharmacology, University College, Dublin, Ireland. Publication number 119. American Lecture Series monograph in Bannerstone division of American Lecture in Biochemistry and Biophysics. Edited by W. Bladergreen, Jr., Ph.D. Cloth. \$6.50. Pp. 185. With 29 illustrations. Charles C. Thomas Publisher, 301 327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St. W., Toronto, 2B, 1953.

Dr. Conway deals with the site of gastric secretion, with ways of stimulating it, with various theories that have been advanced on its formation, both from a chemical standpoint and from the standpoint of energetics, and with the protective role of gastric urease. Except for five pages on the treatment of gastric ulcer with urea, the book does not include therapy. Throughout the book, parietal cells and yeast cells are compared, obviously the latter are easier to study, and more is known of their biochemical processes. The writing is clear, and the illustrations are adequate. The material is made available through a detailed table of contents, summaries for each chapter, and indexes. The bibliography is 10 pages long. Printing and binding are excellent.

Doctor in the House. By Richard Gordon (pseud.). Cloth. \$2.75. Pp. 186. Harcourt, Brace and Company, Inc., 383 Madison Ave., New York 17, 1953.

In this amusing, nostalgic account of the life, labors, and loves of an English medical student in one of London's hospitals, the author describes with gentle humor his struggles with his studies, his trials with some of his teachers, escapades with fellow students, flirtations with nurses, clinical trial and error with the help of patients, and drinking bouts at the King George pub. Some parts of the book are highly entertaining. There is, for example, the colorful description of the nurse in charge of obstetrics students who could talk only about mothers and newborn infants and thought of everyone solely as a reproductive mechanism. When discussing obstetric anatomy she always awarded the parts of the birth canal to the listener. When your cervix is fully dilated, she cautioned the medical students, "you must decide whether to apply your forceps to your baby. You must feel to see if your head or your breech is presenting." And in response to the question "Suppose it's your shoulder or your left ear?" she replied without hesitation, "Then you put your hand in your uterus and rotate your child." There is much more in a similar vein. This book can provide several hours of enjoyable reading.

QUERIES AND MINOR NOTES

EXCRETA FROM TOILETS ON TRAINS

TO THE EDITOR—About two years ago I read that the nation's railway trains, as a result of their open plumbing, may be disseminating poliomyelitis virus throughout the country. At a pediatric meeting in Danville, Pa I talked with other physicians who have wondered about this. It should be possible, by adding a dye to the water in train toilets to determine the amount of contamination. Has any such study been made?

M.D., New York

This inquiry was referred to two consultants, whose respective replies follow—Ed

ANSWER—A quantitative study of human excreta flushed from toilets on railway passenger cars was made a few years ago under the auspices of the Joint Committee on Railway Sanitation of the Association of American Railroads operation and maintenance department. A brief summary of the findings and references to the original reports may be found in an editorial on "Railroad Toilet Wastes" (*J A M A* 137:1134 [July 24] 1948). There appears to be no substantial direct evidence of the importance of railroad toilet wastes in the spread of poliomyelitis.

ANSWER—The most recent authoritative large scale survey of this problem was conducted by the sanitary research project of the Joint Committee on Railway Sanitation, on which were representatives of the United States and Canada's public health services and the engineering, mechanical, and medical sections of the Association of American Railroads. The results of that study, which involved over four years of research and experimentation, were as follows: 1. No evidence was found that sewage wastes from railroad passengers have caused outbreaks or epidemics of communicable enteric disease. 2. The presence of coliform bacteria in railroad ballast, in runoff from roadbeds, and in the atmosphere of fast moving trains is no greater than in other environments generally considered not inimical to good health. 3. The amount of fecal solids discharged to the railroad right of way from passenger trains is exceedingly small, it is estimated to average for all passengers in the United States less than 1 oz. per yard (91.4 cm) of track per year. It was pointed out, however, that whether any undetected relationship actually exists between present disposal methods and the enteric diseases and possibly poliomyelitis like diseases is not known at present. The report proposed that the problem be studied continuously and that hoppers be provided for transitory retention of waste in certain areas in which the deposition may conceivably constitute a hazard despite the inability to demonstrate one objectively. None of the authorities consulted by the project personnel believed that railroad passenger waste plays a significant part in the spread of poliomyelitis. In about 10,000 references reviewed by members of the project, the role of the railroads in this connection was mentioned six times, but in none was more suggested than that railroad toilet waste may possibly be a reservoir of the virus.

REFERENCES

Railroad Wastes and Poliomyelitis unpublished report by the Sanitation Research Project Association of American Railroads Baltimore 1949

Sewage Wastes From Railroad Passenger Cars Summary Report to the Joint Committee on Railway Sanitation Sanitation Research Project Association of American Railroads Baltimore May 31 1950

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address but these will be omitted on request.

TREATMENT OF NEUROSYPHILIS

TO THE EDITOR—What is the modern viewpoint on the treatment of cerebral and meningovascular syphilis? Is penicillin alone sufficient in every case? What tests indicate a cure, in view of the fact that some patients have irreversible abnormal Lange gold curves, positive blood Wassermann test reactions, and, perhaps positive spinal fluid Wassermann test reactions? One patient shows hypersensitivity (reaction not indicated on her chart) to penicillin. Does this indicate use of the older form of treatment with arsenic or is oxytetracycline (Terramycin) therapy worth trying?

Thomas M. Shannon, M.D., Morganton, N.C.

ANSWER—It is difficult to answer these questions without some preliminary clarification. By meningovascular and cerebral syphilis it is assumed the inquirer means neurosyphilis. There are a number of accepted classifications of neurosyphilis, all of which are considerably more detailed than the two terms employed in the question. Most syphilologists and neuropsychiatrists would agree on some such simple classification as the following one: (1) asymptomatic neurosyphilis, early (infection less than four years in duration), (2) asymptomatic neurosyphilis, late (infection more than four years in duration), (3) acute syphilitic meningitis (usually a manifestation of early syphilis), (4) diffuse meningovascular neurosyphilis, (5) tabes dorsalis, (6) dementia paralytica (general paralysis of the insane), (7) other rarer manifestations, such as Erb's spinal spastic paraplegia and vascular neurosyphilis. "Asymptomatic neurosyphilis" means, of course, neurosyphilis manifested only by abnormalities in the spinal fluid, without neuropsychiatric symptoms or signs.

Penicillin may be used in the treatment of all types of central nervous system syphilis and may be administered by various systems. One is to administer aqueous penicillin G to the hospitalized patient, in a dose of from 100,000 to 500,000 units or more every three to four hours, around the clock, to a total dose over 10 to 14 days of 10 million units or more. Many competent observers now treat most patients with neurosyphilis on an ambulatory basis, utilizing a repository penicillin preparation, usually procaine penicillin G in aqueous suspension or an oil with 2% aluminum monostearate added. Also usable for this purpose are the penethamate hydriodide (Neo penil) and N,N'-dibenzylethylenediamine dipenicillin G (Bicillin). The particular advantage of penethamate hydriodide has been reported to be appearance of a greatly increased concentration of penicillin in the cerebrospinal fluid following intramuscular administration and the advantage of Bicillin to be unusual prolongation of therapeutic blood levels (7 to 10 days) after a single intramuscular injection of 600,000 units. With any of the repository penicillin preparations, the usual practice is the administration of single injections of 600,000 units each at one to three day intervals until a total of 10 to 12 million units has been given.

Penicillin alone is satisfactory for the treatment of most patients with neurosyphilis and certainly for the majority of those with clinical forms other than parenchymatous neurosyphilis (tabes dorsalis or general paresis). In many patients with tabes dorsalis, penicillin alone is not completely satisfactory in the relief of symptoms and the proper management of such patients is often a complex medical procedure, necessitating specialized methods of approach (fever therapy, especially with induced tertian malaria, and neurosurgical procedures for the relief of gastric crises). In one particular complication of tabes dorsalis, namely, primary optic atrophy, evidence is not yet available as to the efficacy of penicillin therapy in bringing about arrest of the atrophic process. Many observers still feel strongly that treatment in such patients should consist of fever therapy, with induced tertian malaria,

combined with penicillin administration. In patients with general paresis, the use of penicillin for the initiation of treatment creates about a 10% risk of serious clinical Jarisch-Herxheimer reactions, which may be avoided by initiating treatment with fever therapy, penicillin therapy being delayed until the patient has had two or three paroxysms.

It is not quite accurate to use the word "cure" in speaking of the treatment of neurosyphilis. This word may be applied only to the inflammatory component of the lesion or, to put it differently, to the possible "cure" of the underlying treponemal infection. A cure of symptoms and signs produced by actual degeneration within the nervous system is not possible. From the laboratory point of view, the efficacy of treatment in neurosyphilis may be measured by the cell count and the protein content in the spinal fluid. In 95% of all neurosyphilitic patients treated with penicillin, both the cell count and protein content usually promptly (within six months) become normal and usually remain so. Having once reverted to normal, a subsequent increase in cell count or protein content may be interpreted as relapse of the inflammatory component of the neurosyphilitic lesion and as an indication for retreatment. This is the so-called Dattner-Thomas concept of "active" versus "inactive" spinal fluid and is thoroughly documented in the literature. Patients who are hypersensitive to penicillin G may usually be satisfactorily treated with either fever therapy or one of the nonallergenic penicillins, such as penicillin O. Metal chemotherapy in such patients or, indeed, in neurosyphilis in general, has been almost completely abandoned. The broad spectrum antibiotics, aureomycin, oxytetracycline and chloramphenicol, are less effective than penicillin.

VITAMIN B GIVEN INTRAVENOUSLY

TO THE EDITOR—*Is there any explanation for the fact that a chronically fatigued woman feels more energetic following intravenous injection of vitamin B? This increased energy and well-being is said to last for a week or longer. The woman is about 40, has four children, is socially prominent, was athletic and is in apparent good health. It is my feeling that this result has more of a psychic than a physiological basis.*

M D Ohio

This inquiry was referred to two consultants, whose respective replies follow.—ED

ANSWER—The good effect obtained from the administration of vitamin B once a week probably has a psychic basis. It is unlikely that there is a deficiency of this substance in a healthy woman who is on a well balanced diet.

ANSWER—The increased sense of well being described by the patient is probably psychogenic. It is doubtful whether there is any clinical indication for intravenous administration of vitamin B other than the presence of wet beriberi. Sensitization reactions following intravenous administration of thiamine chloride have been observed, some severe enough to cause death.

SINUS BRADYCARDIA

TO THE EDITOR—*An 86 year-old woman, well and happy, had the pulse rate of complete heart block, 40 beats per minute. On Jan. 3, 1953, she had an acute cold, with difficulty in breathing and her blood pressure was 190/110. I was surprised to find the pulse of heart block, absent the rate being 64. She has long since recovered from the cold and is again well. I have never heard of a heart block adjusting itself to a normal heart beat. Is this an unusual case? The patient has been receiving no medication that would affect her heart condition.*

M D Iowa

ANSWER—Sinus bradycardia with a pulse rate of 50 to 60 beats per minute is common in many normal persons of both sexes and in all age groups. Occasionally, as on first awakening in the morning, the rate may fall to between 40 and 50 in such persons. An electrocardiogram is usually needed

to establish the presence and degree of heart block. For example, a heart rate of 40 might be associated with an auricular rate of 80, with a 2:1 atrioventricular block, or, rarely, it may be due to atrioventricular nodal rhythm. Complete heart block ordinarily results in an independent ventricular rate of 35 or below. In older persons, it is usually caused by coronary heart disease, although angina pectoris, congestive failure, or myocardial infarction need not be associated as part of the clinical picture. Temporary complete heart block is occasionally seen accompanying an infarction of the posterior wall of the left ventricle. It may also occur with narrowing of the vessels supplying the junctional tissues with blood where the atrioventricular block varies with the activity of the person and the state of the circulation.

AZOOSPERMIA

TO THE EDITOR—*I have been treating a 30-year-old man for sterility. I have given him vitamin E (100 mg) twice daily and testosterone (25 mg) twice a week. Examination of the seminal fluid at the beginning of treatment revealed no sperm, and recent examinations revealed no sperm. This patient had mumps when a child. One testicle appears normal in size and the other is slightly atrophied. What suggestions can you make for treatment?*

B C Kappmeyer, M.D. Hamilton Ill

ANSWER—To determine the proper treatment in this case, certain tests should be made to establish a diagnosis. In azoospermia, such as appears here, bilateral testicular biopsy of the serialized type should be performed. If the biopsy material, taken from several areas of each testicle, shows normal spermatogenesis, a diagnosis of bilateral absence or obstruction of the avenues of sperm outlet is justified. If the biopsies show temporary arrest due to pituitary insufficiency, injections of a potent pituitary product might be beneficial. If, on the other hand, the biopsies show marked peritubular fibrosis or marked diminution in the number of germ cells, treatment is not likely to be of any avail. Vitamin E, when given in sterility, is used on psychological grounds, only. The importance of following the ordinary hygiene of living should be stressed.

POSSIBLY NEUROGENIC HYPOGLYCEMIA

TO THE EDITOR—*The question of Dr. Joel Peterson of St. Paul in THE JOURNAL for April 18, 1953, page 1463, interested me greatly. The history of undue fatigue, nervousness and abnormal craving for sweets with a normal fasting blood sugar level certainly indicates hyperinsulinism or so-called neurogenic hypoglycemia. A six hour glucose tolerance test would no doubt show the hypoglycemia. Regardless of the outcome of the test, the symptoms call for a diet test. Improvement with the proper diet should be spectacular in one or two weeks. This diet is one high in protein, low in carbohydrates and high in fat with no sweets or caffeine and with frequent feedings. The diet recommended by Dr. Seale Harris is still the best. If all physicians would read the work of Dr. Seale Harris on dysinsulinism and hyperinsulinism (J A M A 83:729 [Sept 6] 1924; Ann Int Med 10:514 [Oct] 1936) as well as Body Mind and Sugar, by Dr. Abrahamson (New York, Henry Holt & Company, Inc., 1951), thousands of persons would not have to go through what I did. During three years of severe illness I was examined by 14 specialists and 3 nationally known clinics before a diagnosis was made by means of a six hour glucose tolerance test. Previous diagnoses having been brain tumor, diabetes and cerebral arteriosclerosis. Seeing the six hour cure I found the answer in Dr. Seale Harris's diet and immediately recovered.*

Since then I have used this hard earned knowledge in diagnosing and curing the condition in numerous patients, in some of whom the blood sugar level like mine, at times dropped to 50 mg per 100 cc.

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Tampa 9 Fla

